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*Report*

# 2006 Subsurface Soil Investigation

Submitted to



**Modine Manufacturing Company**

January 26, 2007

Prepared by



4001

473111



RCRA RECORDS



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January 26, 2007

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Subject: 2006 Subsurface Soil Investigation Report  
Modine Manufacturing Company  
Camdenton, Missouri

Dear Ms. Kump-Mitchell:

CH2M HILL is submitting, on behalf of Modine Manufacturing Company, a copy of the 2006 Subsurface Soil Investigation Report for the Camdenton facility. Copies of the report have also been provided to those individuals copied on this letter. Please feel free to call Tom Sanicola (262-636-1649) or me (314-421-0313 Ext. 265) with any questions you may have.

Sincerely,

CH2M HILL

A handwritten signature in black ink, appearing to read "DJP".

Daniel J. Price, R.G.  
Project Manager

stl\2006 SS Inv Report Cover Letter.doc

c: Thomas Sanicola - Modine Manufacturing Company  
Bob King - Modine Manufacturing Company  
Steven Poplawski - Bryan Cave LLP  
**David Garrett - EPA Region VII**  
Rick Nussbaum - Missouri Department of Natural Resources

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# 1 Introduction

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In accordance with the *Final Site Investigation Work Plan (Revision 1)* dated September 26, 2006, this 2006 Subsurface Soil Investigation Report summarizes the subsurface investigation of the soils, conducted in October 2006, beneath the existing manufacturing building at the Modine Manufacturing Company (Modine) facility located at 221 Sunset Drive in Camdenton, Missouri. This report describes the objective of the investigation, provides a brief history of previous investigations, describes the field activities implemented, provides a summary of the analytical results, and evaluates the findings in relation to previous findings. A site location map is provided as Figure 1.

## 1.1 Objective

The primary objective of this most recent subsurface soil investigation is to further assess the extent of soil contaminated with chlorinated volatile organic compounds (VOCs), primarily trichloroethene (TCE), beneath the manufacturing building in the vicinity of the former Monorail Vapor Degreaser and Still M567 (solid waste management unit [SWMU] 26) and former Mudpits Number 1 and Number 3 (part of SWMU 2). The Missouri Department of Natural Resources (MDNR) requested that Modine conduct an additional investigation in correspondence dated April 7, 2006, and July 19, 2006 (MDNR 2006a and 2006b).

## 1.2 Background

Several previous investigations and removal actions have been completed to assess and address soil contamination in the areas of the former Monorail Vapor Degreaser and the former Mudpits. Additionally, investigation and soil removal actions were conducted in 2001 and 2002 to delineate and then remove soil contaminated with TCE on the west side of the manufacturing building where still bottoms had historically been disposed of. To assist in delineation and cleanup activities, Site Specific Soil Cleanup Levels (SSCLs) were developed for screening purposes. Since that time, the SSCLs have continued to be used as comparative criteria for screening analytical data. A summary of how the SSCLs were developed and a brief investigative history for the former Mudpits and the former Monorail Vapor Degreaser are provided in the following subsections.

### 1.2.1 Development of Site Specific Cleanup Levels

A detailed discussion regarding how the SSCLs were developed is presented in the report entitled *RCRA Corrective Action, Development of Site Specific Soil Cleanup Levels*, dated March 2002 (CH2M HILL 2002). The development of SSCLs was considered necessary based on the following:

- Soil samples collected during a subsurface investigation performed in October and early November 2001 identified soil containing chlorinated VOCs (TCE, vinyl chloride, and cis-1,2-dichloroethene [cis-1,2-DCE]) in excess of MDNR Cleanup Levels for Missouri (CALM) Soil Target Concentrations (STARC) Leaching to Groundwater ( $C_{\text{Leach}}$ )

- Though present in soils, vinyl chloride and cis-1,2-DCE were not present at concentrations exceeding CALM Groundwater Target Concentrations (GTARC) levels in groundwater samples collected from nearby onsite monitoring wells.

The fact that vinyl chloride and cis-1,2-DCE were present in soil at concentrations in excess of the CALM STARC C<sub>Leach</sub> levels, but not found in groundwater at concentrations exceeding GTARC levels, illustrated that less conservative concentrations in soil would be protective of groundwater.

In accordance with guidance provided in Tier 2 Cleanup Levels of CALM, the synthetic precipitation leaching procedure (SPLP) was used to determine the site-specific leaching potential of the chlorinated VOCs to the underlying groundwater. The results of the total and SPLP VOC analyses were used to determine acceptable residual concentrations of cis-1,2-DCE, TCE, and vinyl chloride in the on-site soil. These acceptable levels were determined based on the following:

- Dividing the total VOC concentration of each parameter by the SPLP VOC concentration of each parameter for all samples analyzed
- Calculating the average ratio for each analytical parameter by adding the individual ratios together and dividing the result by the total number of ratios calculated
- Calculating a SSCL by multiplying the average ratio for each analytical parameter by the MDNR CALM STARC level for the individual parameter

$$\text{Site Specific Cleanup Level} = \text{Average Ratio} \times \text{CALM GTARC Level}$$

Those samples that had detectable total VOC concentrations, used to develop these ratios, are shown in Table 1. As a conservative measure, for those samples with nondetectable SPLP VOC results, the SPLP VOC reporting limit was used in the denominator for calculating ratios.

Calculated site specific cleanup levels were:

- cis-1,2-DCE – 8.68 milligrams per kilogram (mg/kg)
- Trichloroethene (TCE) – 0.38 mg/kg
- Vinyl chloride – 0.32 mg/kg

### 1.2.2 Former Monorail Vapor Degreaser and Still M567

The Monorail Vapor Degreaser and associated still, Still M567 was installed in 1985 and operated until 1997. The floor beneath the Monorail Vapor Degreaser was recessed approximately 5.5 feet below the surface of plant floor. The recessed trough had a solvent capacity of 4,000 gallons and measured approximately 65 feet long (east to west) and 10 feet wide (Figure 2). The degreaser unit measured approximately 50 feet long. TCE was used in the unit from 1985 until 1990, when Modine purchased the facility. Modine used 1,1,1-trichloroethane (1,1,1-TCA) in the Monorail Vapor Degreaser from 1990 to 1993. In 1993, 1,1,1-TCA was replaced with methylene chloride, which was used until 1997, when the Monorail Vapor Degreaser was removed (CH2M HILL 2005).

The first investigation conducted in this area was the 1991 Environmental Site Assessment through the concrete floor and hand-augured borings were advanced from the surface to

depths up to 4.3 feet below ground surface (bgs). Soil samples collected were analyzed for VOCs (Figure 3). Two soil samples, collected from borings HA-1 and HA-5 had TCE concentrations of 3.0 and 0.78 mg/kg, respectively (Figure 4), above the SSCL of 0.38 mg/kg. The sample from HA-5 also contained 1,1,1-TCA above the C<sub>Leach</sub> value of 3.5 mg/kg at a concentration of 200 mg/kg (Table 2).

The results from this investigation prompted the MDNR to request additional investigation in this area. In 1997, Dames & Moore advanced 10 probes (P-1 through P-10) inside the building around the Monorail Vapor Degreaser and Still M587 (Figure 3). The probes were advanced to depths ranging from approximately 3.5 to 17 feet below the surface of the plant floor. Soil samples were collected and analyzed for VOCs (Table 2) (Dames & Moore 1997a). Soil samples collected from Probe P-7 at depths of 4 feet and 4.5 to 5.5 feet bgs exceeded the SSCL for TCE with concentrations of 4.0 and 3.4 mg/kg, respectively (Figure 4).

### 1.2.3 Former Mudpits

Four Mudpits along the west side of the building were used for wastewater collection from the time the building was constructed in 1967 through 1986, when the wastewater pretreatment plant was constructed. Mudpit Number 2 was removed during the construction of the wastewater treatment plant. The Mudpits were cubic concrete sumps approximately 4 feet on a side and located approximately 10 feet west of the building's foundation (Figure 2). The Mudpits received stormwater from roof drains, boiler blowdown, and cleaning line water from the manufacturing process. The Mudpits were connected by a 6-inch-diameter steel line and each Mudpit received wastewater from the previous pit, starting at the south Mudpit (Number 4) and discharging to the onsite sewer line at the northern most Mudpit (Number 1) (CH2M HILL 2005).

In September 1997, Dames & Moore advanced 10 soil probes adjacent to the Mudpits and the on-site sewer line discharging into the city owned sewer system to the north. Five probes were located near Mudpit Number 1 (P1 through P3 and P-9 and P-10), three probes near Mudpit Number 3 (P4, P5, and P8) and two probes near Mudpit Number 4 (P-7 and P-8). The soil samples were analyzed for VOCs (Figure 3) (Dames & Moore 1997b) and the analytical results showed no VOC concentration in excess of the Any-use soil levels (ASLs), the applicable screening levels at that time (Table 3). However, when TCE results were compared to the SSCLs, one soil sample (P-6) contained TCE in excess of the SSCL. The soil sample was collected from a probe located near Mudpit Number 4 at a concentration of 0.900 mg/kg (Figure 4).

In October 1997, Dames & Moore removed the decommissioned Mudpits followed by confirmation sampling from the walls and base of each Mudpit excavation area (Dames & Moore 1997c). Excavation samples E-2 through E-6 were collected near Mudpit Number 1, samples E-7 through E-11 were collected near Mudpit Number 3, and samples E-12 through E-16 were collected near Mudpit Number 4, and were analyzed for VOCs (Table 3) (Figure 3). Samples E-17 through E-20 were collected at Mudpit Number 3 and analyzed for metals. At Mudpit Number 1, samples E-2 (north wall) and E-6 (base) had concentrations above the SSCL of 0.38 mg/kg for TCE at concentrations of 0.74 and 0.925 mg/kg, respectively (Figure 4). At Mudpit Number 3, sample E-9 (north wall) was slightly above the SSCL for TCE at a concentration of 0.385 mg/kg (Figure 4). At Mudpit Number 4, samples E-12 (east

wall), E-15 (base), and E-16 (north wall) had TCE concentrations of 1.975, 0.383, and 0.392 mg/kg, respectively (Figure 4), above the SSCL of 0.38 mg/kg.

## 1.2.4 Related Investigations

Two investigations conducted in association with renovation activities at the facility provided additional data related to the former Monorail Vapor Degreaser and the former Mudpits.

### 1.2.4.1 Renovation Sampling

The building underwent a complete interior renovation in 1997. As part of the renovation, all the degreasing units were removed and recessed floor areas brought to grade. All equipment and subgrade piping in the plant was replaced with new equipment and lines at this time.

During the renovation, Modine conducted additional sampling of soil beneath the floor of the building for the purposes of disposal characterization. 14 soil samples were collected for toxicity characteristic leaching procedure (TCLP) VOCs analysis. One of these samples was collected from the area of the former Monorail Vapor Degreaser. Though direct correlation of TCLP data to total VOC data is not possible, the data does demonstrate the absence of a substantial source of VOCs. A substantial source of VOCs in soil would have resulted in detectable TCLP concentrations. The chlorinated TCLP VOC results from the sampling were all below detectable levels.

### 1.2.4.2 Onsite Wastewater Discharge Line

The onsite wastewater discharge line, which conveyed wastewater from the former Mudpits on the west side of the building to the City of Camdenton sewer system located along the north side of the Modine facility, was removed and replaced as part of a plant renovation in July 2000. Soil samples from the base and the walls of the excavated trench were collected and this information was later provided to the MDNR in a letter report dated February 13, 2003.

A total of 25 soil samples were collected – 12 composite soil samples from both the floor and walls of the excavated trenches and one sample from the floor beneath a 90 degree elbow. The samples were analyzed for VOCs and metals. One sample of released material, identified as sediment, was collected from each of the north-south and east-west segments of the line.

With the exception of methylene chloride detected in the two sediment samples, VOCs were detected in soil samples at concentrations well below the respective CALM C<sub>LEACH</sub> screening levels, and therefore below the SSCLs. Methylene chloride was also present in the associated laboratory blank. Therefore, the methylene chloride concentrations reported in the samples were likely attributable to contamination introduced at the laboratory.

## 2 Field Activities

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This section describes the investigative tasks performed during the field investigation conducted by CH2MHILL in October 2006. The investigation included completion of the single horizontal boring advanced beneath the manufacturing building and Geoprobe® borings in the areas of the former Mudpits. The MDNR was present during field activities and collected split samples from all sampled locations.

### 2.1 Former Monorail Vapor Degreaser and Still M567

A horizontal boring was advanced beneath the manufacturing building to further assess and define the extent of soil contamination near the former Monorail Vapor Degreaser and Still M567 (SWMU 26) identified during previous site investigations. Five discrete soil samples were proposed to be collected, but because of drilling constraints detailed later in this section, only three soil samples were collected and analyzed for VOCs (Figure 2).

Concrete was removed outside and immediately adjacent to the building in the area where the horizontal borehole was started to allow for unencumbered access to the building subsurface. Vacuum extraction was used to excavate material at the beginning of the horizontal drilling area to locate utilities and determine the depth of the footing at the manufacturing building's west wall (Figure 2). Vacuum extraction uses high-pressure water to dislodge the soil and removes the soil by a vacuum system.

The horizontal boring was advanced along a previously identified and surveyed path. Each sampling location was surveyed and the horizontal drilling bit was tracked to match these surveyed coordinates through the use of sensors. The drill bit was equipped with a transmitter, and an employee of the drilling contractor was stationed in the manufacturing building with a receiver to allow for tracking the progress of the drill bit.

Once the proposed sampling location was reached, the drilling equipment was removed from the horizontal borehole. A split spoon sampling device with an acetate liner was inserted into the borehole. The split spoon sampling device was extracted from the borehole, and the soil sample was collected using an En Core® sampler. The drilling equipment was then reinstalled into the borehole to continue the advancement of the horizontal boring. The samples were sent to an offsite laboratory for analysis of VOCs using EPA Method 8260.

Soil samples were collected at 55 feet (MO-HB-055, approximately half-way between the former Mudpits and the former Monorail Vapor Degreaser, near the former still location), 85 feet (MO-HB-085, the northwest corner of the former Monorail Vapor Degreaser, near the former solvent tank), and 120 feet (MO-HB-120, near the center and immediately north of the formerly recessed area that housed the former Monorail Vapor Degreaser). Soil was collected at 120 feet, rather than the proposed 115 feet because of poor recovery at 115 feet. A field duplicate was collected at 120 feet along the horizontal boring (MO-HB-120FD). The proposed soil samples at 150 feet and 185 feet were not collected, because gravel (crushed limestone) was encountered at 130 feet and continued to a distance of 160 feet (10 feet past

the fourth proposed sampling location). The gravel encountered was the result of the decommissioning of the vapor degreaser pit, which included filling the pit with gravel.

As the horizontal drilling continued in the encountered gravel to a distance of 160 feet, a conference call was held at approximately 4:30 P.M. on Thursday, October 26, 2006, to discuss options for the continuation of the horizontal boring. Participants included: Bob King/Modine, Chris Kump-Mitchell/MDNR, Don Van Dyke/MDNR, Dan Price/CH2M HILL, and Glynn Roberts/CH2M HILL. Based on the discussion and at the suggestion of MDNR, it was decided that the horizontal boring had achieved the sampling objectives. The sample collected from the 120 foot location was within 10 feet of the original 1997 probe location (P-7) that had exhibited high concentrations of TCE in soil samples collected from approximately the same depth below grade. MDNR agreed that the three samples collected would be sufficient to demonstrate whether or not contamination remains in soil in the area of the former Monorail Vapor Degreaser.

## **2.2 Former Mudpits Number 1 and Number 3**

Two Geoprobe borings were completed, one at each Mudpit, located between the Mudpit and the west wall of the manufacturing building. The borings were advanced to a depth of 10 feet at Mudpit Number 1 and 12 feet at Mudpit Number 3, at which bedrock was encountered. The probes were advanced at a 30 degree angle to collect soil samples beneath the building to assess the eastward lateral extent of potential soil contamination in these areas. Two samples were collected from each boring using an En Core sampler and analyzed by an offsite laboratory for VOCs using EPA Method 8260.

Soil was continuously sampled as the probe was advanced. Soil samples were selected for laboratory submittal based on photoionization detector (PID) readings. The two soil samples from depths exhibiting the highest PID readings were selected for submittal to the laboratory. At Mudpit Number 1, soil was collected at depths of 3 feet (MO-MP1-03) and 10 feet (MO-MP1-10); and at Mudpit Number 3, soil was collected at depths of 7 feet (MO-MP3-07) and 12 feet (MO-MP3-12) (Figure 2). A field duplicate was collected from the 10-foot depth at Mudpit Number 1 (MO-MP1-10FD).

Groundwater was not encountered at these probe locations, therefore, no groundwater samples could be collected.

## **2.3 Site Restoration**

Upon completion of the horizontal boring, the 6-inch-diameter borehole was grouted with high solids bentonite grout or with concrete as specified by Modine facility personnel. After the borehole was grouted, the starting excavation was backfilled with soil and compacted. Concrete was poured to surface grade to match surrounding conditions.

## **2.4 Waste Handling**

The soil cuttings and water used during the horizontal and Geoprobe borings were contained in a poly tank, which was sampled and characterized once the drilling was completed. The waste generated from the directional drilling was collected, solidified, and taken to a Subtitle D landfill for disposal.

## **3 Analytical Results**

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Laboratory analytical results for the field activities performed in October 2006 are provided in Appendix A.

### **3.1 Former Monorail Vapor Degreaser and Still M567**

Analytical results for the three soil samples (MO-HB-055, MO-HB-085, and MO-HB-120) collected from the horizontal boring revealed one sample with TCE at a concentration above the SSCL of 0.38 mg/kg. Sample MO-HB-085, collected at a distance of 85 feet from the west wall at the former northwest corner of the Monorail Vapor Degreaser, near the former solvent tank, had a concentration at 0.69 mg/kg (Figure 4). The other two locations, MO-HB-055 and MO-HB-120, exhibited TCE concentrations of 0.039 and 0.15 mg/kg, respectively (Table 4), both below the SSCL.

The MDNR split samples showed comparable results: 0.078 mg/kg in the sample from 55 feet (MO-HB-055), 0.64 mg/kg in the sample from 85 feet (MO-HB-085), and 0.08 in the sample from 120 feet (MO-HB-120).

### **3.2 Former Mudpits #1 and #3**

Of the analytical results from the four soil samples collected from the intervals exhibiting the two highest PID measurements in each of the two borings (one each adjacent to Mudpit Number 1 and Number 3), only one sample from each probe contained a TCE concentration above the SSCL of 0.38 mg/kg. The soil sample collected from Probe MP-01 (adjacent to Mudpit Number 1) at a depth of 10 feet (MO-MP1-10) had a TCE concentration of 3.4 mg/kg (Figure 4). The soil sample collected at a depth of 3 feet in probe MP-01 (MO-MP1-03) had a TCE concentration below the SSCL at 0.11 mg/kg. At Mudpit Number 3, TCE was present at a concentration above the SSCL in the soil sample from a depth of 12 feet (MO-MP3-12) with a concentration of 0.56 mg/kg (Figure 4). The soil sample collected from a depth of 7 feet (MO-MP3-07) in Probe MP-03 had an estimated concentration, below the laboratory reporting level, of 0.0021 mg/kg (Table 5).

The MDNR split samples once again showed comparable results: 0.19 mg/kg at a depth of 3 feet in Probe MP-01, 2.15 mg/kg at a depth of 10 feet in Probe MP-01, 0.0118 mg/kg at a depth of 7 feet in Probe MP-03, and 0.537 mg/kg at a depth of 12 feet in Probe MP-03.

### **3.3 Quality Assurance and Quality Control**

Measures were taken to reduce the possibility of cross contamination between probes and between sample intervals. Clean, decontaminated samplers were used for each probe. A new, disposable liner was used for each soil sample taken. Personnel who handled tools and collected samples wore a new pair of disposable gloves for each sample acquisition.

A field duplicate was collected from the horizontal boring (MO-HB-120FD) and from the probe advanced at Mudpit Number 1 (MO-MP1-10FD). These field duplicates were collected at the same location and treated in an identical manner during storage, transportation, and analysis as the original sample. Analytical results obtained from these field duplicates were within acceptable quality control (QC) limits.

One trip blank accompanied the samples that were collected and shipped on October 26, 2006. Trip blanks are used to assess the potential introduction of contaminants from sample containers or during the transportation and storage procedures. Analytical results from the trip blank showed that chloromethane was detected at an estimated concentration of 0.97 micrograms per liter ( $\mu\text{g}/\text{L}$ ), but was not detected in any of the samples.

# **4 Evaluation of Results**

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Results from this investigation were evaluated in relation to results from previous investigations conducted in the area by Modine, Hamilton-Sundstrand, and MDNR, and the findings in the MDNR-approved Feasibility Study (FS) for the deep groundwater zone prepared by SECOR on behalf of Hamilton-Sundstrand. The evaluation shows that the TCE concentrations observed from samples collected in diverse potential source locations on-site and off-site in the area were remarkably similar, and that lateral migration of TCE in the clay soil predominant in the area appeared to be limited.

## **4.1 Relevant Offsite Investigations**

In order to provide sufficient background information for evaluation purposes, the relevant data from two offsite investigations are briefly summarized in Sections 4.1 and 4.2.

### **4.1.1 MDNR's Camdenton Sewer Line Investigation**

The MDNR conducted a subsurface soil investigation of the city owned offsite sewer line in June 2006. The MDNR advanced five probes: three along the north-south running section between Sunset Drive and Bent Tree Lane, one at the corner of Bent Tree and Dawson, and one east of the manufacturing building at the end of Mulberry Drive. The results obtained showed that 1 of 12 samples collected from 5 probe locations exceeded the SSCL for TCE of 0.38 mg/kg. The one sample that exceeded the SSCL for TCE was collected from the 90 degree bend in the sewer line along Bent Tree Lane. The sample was collected from a depth of 21.5 feet and had a TCE concentration of 2.57 mg/kg. Samples were collected at irregularly spaced intervals, and no other sample points (probes) contained TCE concentrations above the SSCL (Figure 5).

### **4.1.2 Hulett Lagoon**

Subsurface soil samples were collected from within and surrounding the approximate dimensions of the former Hulett Lagoon (lagoon) on three occasions: by Dames & Moore on behalf of Modine in October 1996, by the MDNR in January 1999, and by SECOR on behalf of Hamilton-Sundstrand during the Remedial Investigation (RI) in June 2000.

Dames & Moore advanced four borings in the area of the lagoon where the inlet pipe from the City sewer system entered the lagoon and the outlet or discharge pipe exited the lagoon were reportedly located. TCE was present at concentrations in excess of the SSCL at two of the four locations; one located near the outfall and the other near the center of the former lagoon.

The MDNR advanced 10 soil borings and collected 8 soil grab samples from the lagoon area and 1 background sample from outside the lagoon (Figure 6). Of these 8 samples, only the result from the sample collected near the previous location of the outfall pipe contained TCE at a concentration in excess of the SSCL. A TCE concentration of 9.5 mg/kg was present at boring location Hulett 01.

SECOR advanced 15 soil borings within the footprint of the former lagoon (Figure 6) during the RI conducted in 2000. Borings were advanced and continuously sampled until meeting refusal within the upper (weathered) portion of the underlying dolomite bedrock at depths ranging between 4 and 11 feet bgs. The sample from probe GP-9 collected from along the former west side of the lagoon, nearest the MDNR sample locations contained a TCE concentration of 3.1 mg/kg (Figure 6).

During the SECOR RI, samples exhibiting the greatest VOC concentrations were also submitted for TCLP analysis. No VOC concentrations were found above the detection limits in the TCLP extract.

## 4.2 Comparable Levels of Contamination

The highest TCE concentrations currently still present in soil from the area are all the same order of magnitude and comparable in concentration. TCE concentrations found at the city owned sewer line (2.57 mg/kg), at the probe east of Mudpit Number 1 (3.4 mg/kg), and from Probe P-7 during the 1997 investigation under the manufacturing building (4.0 mg/kg) are directly comparable to the highest concentration in soil samples collected from the lagoon during the RI (3.1 mg/kg) and the MDNR sampling at the lagoon (9.5 mg/kg).

## 4.3 Limited Lateral Extent of Contamination

Soil samples collected from each of the investigated areas in the vicinity of the Modine facility show a similar lack of TCE lateral migration. This limited lateral extent is discussed by area in the following paragraphs.

The soil sample collected from the lagoon by Hamilton-Sundstrand that exhibited a TCE concentration above the SSCL is bound by samples that had TCE concentrations below detectable levels. The MDNR sample location with the elevated TCE concentration from the lagoon is bounded in all directions by samples that contained TCE at concentrations below the SSCL, and all but one sample were at concentrations below detectable levels.

A soil sample collected from the horizontal boring (MO-HB-120) at 120 feet east of the west wall in October 2006 had a TCE concentration of 0.15 mg/kg (MDNR split 0.08 mg/kg), below the SSCL. This sample was collected within 10 feet of the 1997 probe location P-7 which exhibited the two highest TCE concentrations. It was also within 5 feet of the former hand-augured boring (HA-1) advanced by Law in 1991, which contained a TCE concentration of 3.0 mg/kg.

Further demonstration of the limited lateral extent of TCE in on-site soil is illustrated in the data (both historic and recent) from the Mudpit sampling. Historic samples collected from the excavation of the Mudpits in October 1997 show that lateral extent was defined in all directions other than to the north at Mudpits Number 1, Number 3, and Number 4 (Dames & Moore 1997b). Subsequent soil sampling during the onsite sewer line replacement demonstrates that lateral extent was defined to the north of Mudpit Number 1. Recent samples, collected in October 2006 from probes on the east side of the former Mudpits, were advanced at an angle of 30 degrees to achieve sample collection from beneath the building footprint and showed TCE concentrations in excess of the SSCL at 3.4 mg/kg (MDNR split

2.15 mg/kg) at Mudpit Number 1 and 0.56 mg/kg (MDNR split 0.537 mg/kg) at Mudpit Number 3. However, based on the historic evidence from the excavation samples it would be unlikely that lateral extent would extend much beyond the current sample locations.

## 4.4 Limited Leaching of Contaminants

As part of the RI, samples collected were also analyzed using TCLP, a more aggressive extraction process than employed by the SPLP process used to derive the SSCLs. The aggressive nature of the TCLP extraction would be expected to result in greater concentrations of VOCs in the leachate than would occur in a natural setting (the intent of SPLP is to replicate natural conditions). These samples showed that no measurable portion of TCE was leachable under the conditions of the test. This fact led to the conclusion drawn in the RI, and the following FS, that the leaching of TCE from soil to groundwater should not contribute to TCE concentrations in groundwater. Therefore, the leaching to groundwater pathway was eliminated from consideration as part of the Targeted Risk assessment (TRA) prepared as part of the FS. The acceptance of the RI and FS by MDNR provided concurrence for the conclusion that no risk is posed by residual contaminated soil left in place.

A similar TCLP assessment was conducted on soil samples that were collected from beneath the building floor during the reconstruction of the facility in 1996–1997. No total organic results were obtained, but TCLP results were completed for the soil samples and were shown to be nondetect for all organic constituents.

## 5 Conclusions

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Based on the results from this investigation, supported by the substantial amount of data and the MDNR accepted conclusions from the previously completed investigations, the residual soil contamination continues to appear to be of limited extent and of limited potential mobility to groundwater. Based on this conclusion, we believe no further investigation work is necessary for this site.

As detailed in the FS and accepted by MDNR, the lack of lateral migration coupled with the fact that the "leaching from soil" to groundwater pathway for exposure was demonstrated not to be a contributing factor at the highest detected concentrations strongly supports our conclusion that additional investigation for the purpose of delineation is not necessary. In fact, beneath the building, the leaching to groundwater pathway is further minimized by the capping of the soil area by the building floor, eliminating infiltration and a driver to the groundwater. The FS also states that any contribution to groundwater contamination from the remaining minimally impacted soil in the on-site and off-site areas would not alter the effectiveness of the preferred remedial alternative (that is, pumping of the Mulberry Well).

In summary, Modine believes that the current and historical data, coupled with the MDNR acceptance of the RI and FS conclusions regarding soil, is more than sufficient to show that no additional investigation is necessary. Additional investigation would not provide further benefit to protect human health, the environment and to the implementation of the preferred remedial alternative, the pumping of the Mulberry Well.

## 6 References

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- CH2M HILL. 2002. *RCRA Corrective Action, Development of Site Specific Soil Cleanup Levels*. Modine Manufacturing Company – Camdenton, MO.
- CH2M HILL. 2005. Comprehensive Historical Summary Document, Modine Manufacturing Company, Camdenton Missouri Facility.
- Dames & Moore. 1997a. Subsurface Investigation – Monorail Vapor Degreaser and Still M567 (SWMU 26) and Former Drum Storage Area Number 3 (SWMU 31).
- Dames & Moore. 1997b. Letter Report, Subsurface Investigation – Out of Service Mudpit Locations, Camdenton, Missouri, October 9, 1997.
- Dames & Moore. 1997c. Letter Report, Modine Heat Transfer – Out of Service Mudpit Excavation, Camdenton, Missouri, December 1, 1997.
- Law Environmental, Inc. 1991. Environmental Site Assessment Modine Heat Transfer, Inc.
- Missouri Department of Natural Resources (MDNR). 2006a. Comprehensive Historical Summary Document, Modine Manufacturing Company, Camdenton, Missouri, Facility, December 2005. April 7, 2006.
- Missouri Department of Natural Resources (MDNR). 2006b. Site Investigation Work Plan, Modine Manufacturing Company, Camdenton, Missouri, Facility, June 2006. July 19, 2006.

TABLE 1  
Calculation of Site-Specific Cleanup Levels  
*Modine Manufacturing Company*

Sample ID Sample Depth (feet)	February 2002 CH2M HILL								Cleanup Levels
	MO-SB70 7.0-8.0	MO-SB71 6.0-7.0	MO-SB72 5.0-7.0	MO-SB73 5.0-7.0	MO-SB74 5.0-7.0	MO-SB75 15.0-16.0	MO-SB76 5.0-6.0	MO-SB77 11.0-12.0	
<b>Total VOC Results (Method 5035/8260B)</b>								CALM STARC $C_{Leach}$ Levels	
cis-1,2-Dichloroethene (mg/kg)	0.738	ND (0.0054)	0.111	244	229	2.45	3.32	4.48	0.500
Trichloroethene (mg/kg)	0.068	ND (0.0054)	ND (0.0054)	2090	53.4	10.7	0.078	0.336	0.100
Vinyl Chloride (mg/kg)	ND (0.029)	ND (0.0054)	ND (0.028)	ND (13.9)	6.1	ND (0.34)	0.126	0.406	0.020
<b>SPLP VOC Results (Method 1312)</b>								CALM GTARC Levels	
cis-1,2-Dichloroethene (mg/L)	0.002	ND (0.002)	0.001	7.79	12.8	0.19	0.12	0.015	0.070
Trichloroethene (mg/L)	0.002	ND (0.002)	ND (0.001)	70	0.282	0.52	0.004	0.002	0.005
Vinyl Chloride (mg/L)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.5)	0.634	ND (0.005)	0.002	0.001	0.002
<b>Ratio (Total VOC/SPLP Result)</b>								Average Ratio (Total VOC/SPLP Result)	
cis-1,2-Dichloroethene (mg/kg)	369.000	-	111.000	31.322	17.891	12.895	27.667	298.667	124.063
Trichloroethene (mg/kg)	34.000	-	-	29.857	189.362	20.577	19.500	168.000	76.883
Vinyl Chloride (mg/kg)	-	-	-	-	9.621	-	63.000	406.000	159.540
<b>Site Specific Cleanup Levels</b>									
<b>Site Specific Cleanup Levels (Average Ratio x CALM GTARC Level)</b>									
cis-1,2-Dichloroethene (mg/kg)			8.68						
Trichloroethene (mg/kg)			0.38						
Vinyl Chloride (mg/kg)			0.32						

*Notes:*

The reporting limit was used as the SPLP concentration for SPLP parameters not detected

MO-SB70 = MO-Modine, SB-Soil Boring, 70-Number 70

ND (0.029) = Not detected at a concentration greater than the listed reporting limit

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

CALM STARC  $C_{Leach}$  = Cleanup Levels for Missouri, Soil Target Concentration, Leaching to Groundwater (September 2001)

CALM GTARC = Cleanup Levels for Missouri, Groundwater Target Concentration (September 2001)

TABLE 2

Analytical Results of Historical Samples near the Monorail Vapor Degreaser and Still M567  
*Modine Manufacturing Company*

October 1991 Law Environmental						Site Specific Calculations
Sample I.D.	HA-1	HA-2	HA-3	HA-4	HA-5	Site Specific Calculations
Sample Depth (Feet)	2.0-4.0	4.0-4.3	0-2.0	0-0.75	0-2.0	
Collection Date	10/5/1991	10/5/1991	10/5/1991	10/6/1991	10/6/1991	
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
vinyl chloride	ND	ND	ND	ND	0.027	0.32
trichlorofluoromethane	ND	ND	ND	ND	0.011	NC
1,1-dichloroethene	ND	ND	0.0041	ND	ND	NC
methylene chloride	ND	ND	ND	ND	0.61	NC
1,2-dichloroethene (total)	ND	ND	ND	ND	0.016	NC
1,1-dichloroethane	ND	ND	ND	ND	0.072	NC
chloroform	0.0018	ND	ND	ND	0.083	NC
1,1,1-trichloroethane	0.55	0.014	0.018	0.0018	200	NC
1,2-dichloroethane	ND	ND	ND	ND	0.42	NC
trichloroethylene (TCE)	<b>3.0</b>	0.029	0.01	ND	<b>0.78</b>	0.38
1,1,2-trichloroethane	ND	ND	ND	ND	0.27	NC
tetrachloroethene	0.36	ND	ND	ND	0.13	NC

May 1997 Dames and Moore																		
Sample I.D.	P-1	P-1	P-2	P-2	P-3	P-3	P-4	P-4	P-5	P-5	P-6	P-7	P-7	P-9	P-9	P-10	P-10	Site Specific Calculations
Sample Depth (Feet)	8-12'	16-17'	10"-4'	4-6'	10"-4'	4-5.5'	10"-4'	4-6'	0-4'	6-7.5'	5"-3.5'	4"	4.5-5.5'	0-4'	4-7'	4-8'	8-11'	mg/kg
Collection Date	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	5/16/1997	
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg												
acetone	0.022	ND	0.076	0.02	0.027	0.012	0.012	0.045	ND	0.025	0.043	0.12	ND	ND	ND	ND	0.05	
1,1-dichloroethene	ND	0.007	ND	0.03	0.77	ND	ND	ND	ND	NC								
methylene chloride	0.012	0.006	0.009	ND	0.005	ND	ND	0.016 B	0.026	0.052	0.05 B	0.11 B	ND	0.03 B	0.044 B	ND	0.051 B	
1,2-dichloroethene (total)	0.05	ND	0.096	ND	ND	ND	0.024	0.018										
1,1-dichloroethane	ND	0.006	ND	0.079	ND	ND	ND	ND	NC									
1,1,1-trichloroethane	ND	0.024	1.8	6	ND	0.011	ND	ND	NC									
trichloroethylene (TCE)	0.086	0.006	ND	ND	ND	ND	0.048	0.01	ND	0.05	0.008	<b>4</b>	<b>3.4</b>	0.008	0.014	0.08	0.066	
tetrachloroethene	ND	0.014	ND	ND	ND	ND	ND	NC										

Notes:

NC = Not Calculated

ND = Not Detected

B = Analyte identified in blank

Values in **Bold** exceed the calculated Site Specific value

TABLE 3

Analytical Results of Historical Samples near Mudpit Numbers 1, 3, and 4

Modine Manufacturing Company

Soil Probe Location Depth	September 1997 Dames and Moore										Site Specific Calculations
	P-1 Mudpit #1 8-10	P-2 Mudpit #1 0-4	P-3 Mudpit #1 4-7	P-4 Mudpit #3 8-10	P-5 Mudpit #3 4-8	P-6 Mudpit #4 0-4	P-7 Mudpit #4 0-4	P-8 Mudpit #3 0-4	P-9 Mudpit #1 4-6	P-10 Mudpit #1 4-6	
trichloroethylene (TCE)	0.059	0.07	0.003	0.19	NS	<b>0.900</b>	0.0180	0.032	0.123	NS	0.38
cis-1,2-dichloroethene	0.077	0.004	ND	0.069	NS	0.0150	0.0140	0.021	0.108	NS	8.68
Naphthalene	0.004	ND	ND	ND	NS	ND	ND	ND	ND	NS	NC
1,2,3-Trichlorobenzene	0.003	ND	ND	ND	NS	ND	ND	ND	ND	NS	NC
Xylene	ND	ND	ND	ND	NS	0.0020	ND	ND	ND	NS	NC
2-Butanone	ND	ND	ND	ND	NS	ND	0.0120	ND	ND	NS	NC

Confirmation Sample ID Location	October 1997 Dames and Moore															Site Specific Calculations
	E-2 Mudpit #1	E-3 Mudpit #1	E-4 Mudpit #1	E-5 Mudpit #1	E-6 Mudpit #1	E-7 Mudpit #3	E-8 Mudpit #3	E-9 Mudpit #3	E-10 Mudpit #3	E-11 Mudpit #3	E-12 Mudpit #4	E-13 Mudpit #4	E-14 Mudpit #4	E-15 Mudpit #4	E-16 Mudpit #4	
trichloroethylene (TCE)	<b>0.74</b>	0.276	0.275	0.011	<b>0.925</b>	0.375	0.016	<b>0.385</b>	0.158	0.175	<b>1.975</b>	ND	0.256	<b>0.383</b>	<b>0.392</b>	0.38
cis-1,2-dichloroethene	0.169	0.01	0.001	ND	0.235	0.075	0.064	0.545	0.03	0.19	0.43	ND	0.122	0.069	0.207	8.68
tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.451	ND	ND	NC
1,2,4-trimethylbenzene	ND	ND	ND	ND	ND	0.021	ND	ND	ND	ND	ND	ND	ND	ND	ND	NC
1,2,5-trimethylbenzene	ND	ND	ND	ND	ND	0.012	ND	ND	ND	ND	ND	ND	ND	ND	ND	NC

Notes:

All values reported in mg/kg

NS = Not Sampled

NC = Not Calculated

ND = Not Detected

Values in **Bold** exceed the calculated Site Specific Cleanup Level

TABLE 4

Analytical Results of the Horizontal Directional Boring  
*Modine Manufacturing Company*

	October 2006 CH2M HILL					
	MO-HB-055	MO-HB-085	MO-HB-120	MO-HB-120 FD	MRBCA	Site Specific Calculations
1,1-dichloroethane	0.0019 J	0.0093	0.0096	0.0045 J	0.227	NC
1,1-dichloroethene	0.0016 J	0.095	0.037	0.033	0.114	NC
cis-1,2-dichloroethene	0.0031 J	0.064	0.031	0.0026 J	0.658	8.68
trans-1,2-dichloroethene	<0.0057	<0.0057	<0.0057	<0.0057	1.28	NC
tetrachloroethene	<0.0057	0.0067	0.019	0.014	0.147	NC
trichloroethylene (TCE)	0.039	<b>0.69</b>	0.15	0.24	0.149	0.38
vinyl chloride	<0.0057	<0.0057	<0.0057	<0.0057	0.0209	0.32
1,1,1-trichloroethane (1,1,1-TCA)	<0.0058	<0.0058	0.21	0.12	4.5	NC
1,1,2-trichloroethane (1,1,2-TCA)	<0.0058	<0.0058	<0.0064	<0.0064	0.0554	NC

Notes:

All values reported in mg/kg

NC = Not Calculated

J = Estimated result less than the reporting limit.

E= Estimated result in excess of the calibration range.

Values in **Bold** exceed the calculated Site Specific value.

TABLE 5

Analytical Results of Geoprobe Borings  
*Modine Manufacturing Company*

	October 2006 CH2M HILL						Site Specific Calculations
	MP1-03	MP1-10	MP1-10 FD	MP3-07	MP3-12	MRBCA	
1,1-dichloroethane	<0.0057	<0.0059	<0.0056	<0.007	<0.0051	0.227	NC
1,1-dichloroethene	<0.0057	0.0013 J	0.00072 J	0.0026 J	0.00063 J	0.114	NC
cis-1,2-dichloroethene	0.096	1.0	1.2	1.9 E	0.12	0.658	8.68
trans-1,2-dichloroethene	<0.0057	0.0057 J	0.0037 J	0.0027 J	<0.0051	1.280	NC
tetrachloroethene	0.017	0.12	0.11	<0.0070	<0.0051	0.147	NC
trichloroethylene (TCE)	0.11	<b>3.4</b>	<b>3.2</b>	0.0021 J	<b>0.56</b>	0.149	0.38
vinyl chloride	0.0031 J	0.0068	0.0030 J	0.062	<0.0051	0.0209	0.32
1,1,1-trichloroethane (1,1,1-TCA)	<0.0057	<0.0059	<0.0056	<0.0070	<0.0051	4.500	NC
1,1,2-trichloroethane (1,1,2-TCA)	<0.0057	0.0026 J	0.0021 J	<0.0070	<0.0051	0.0554	NC

Notes:

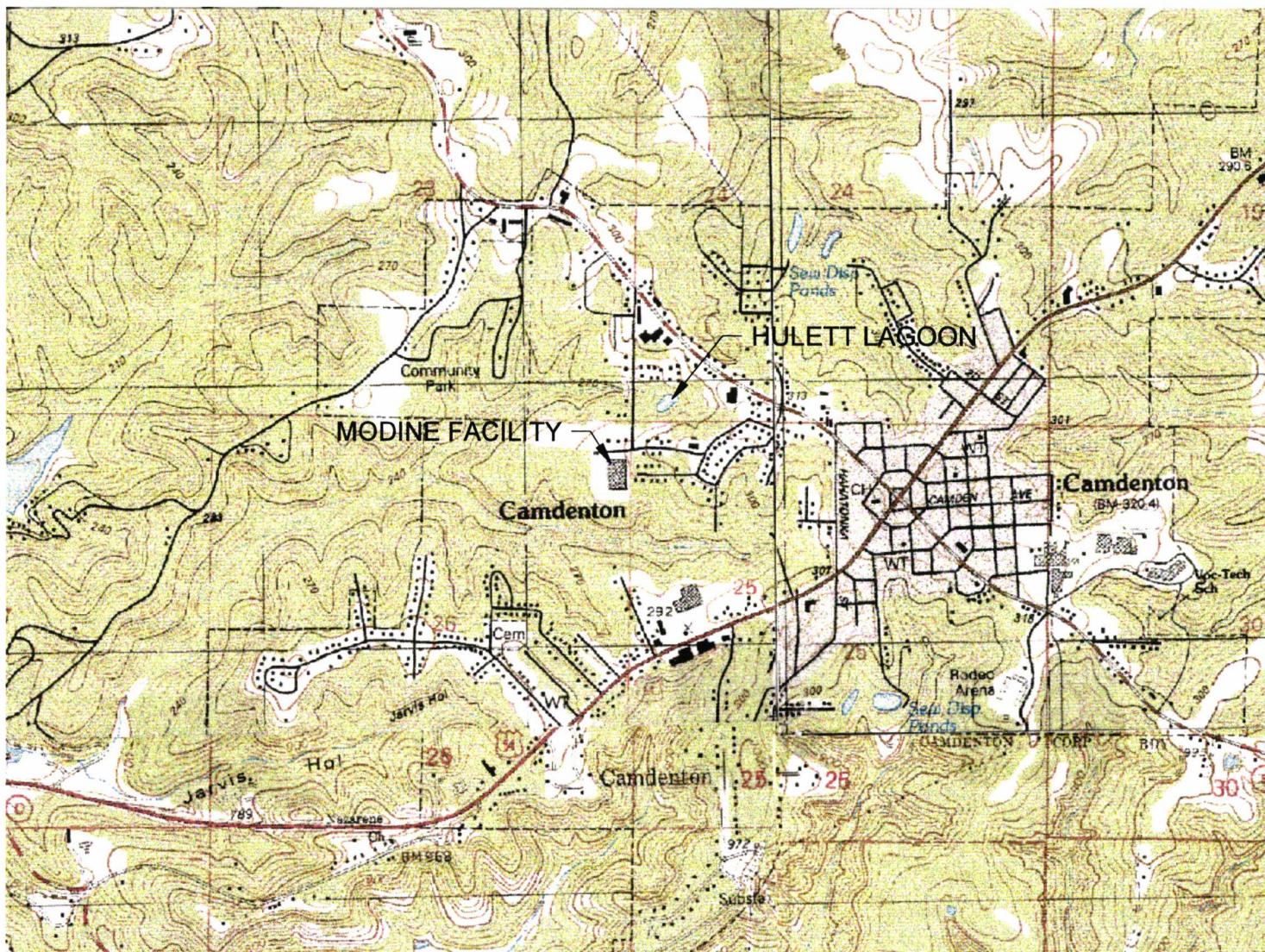
All values reported in mg/kg

NC = Not Calculated

J = Estimated result less than the reporting limit.

E= Estimated result in excess of the calibration range.

Values in **Bold** exceed the calculated Site Specific value.

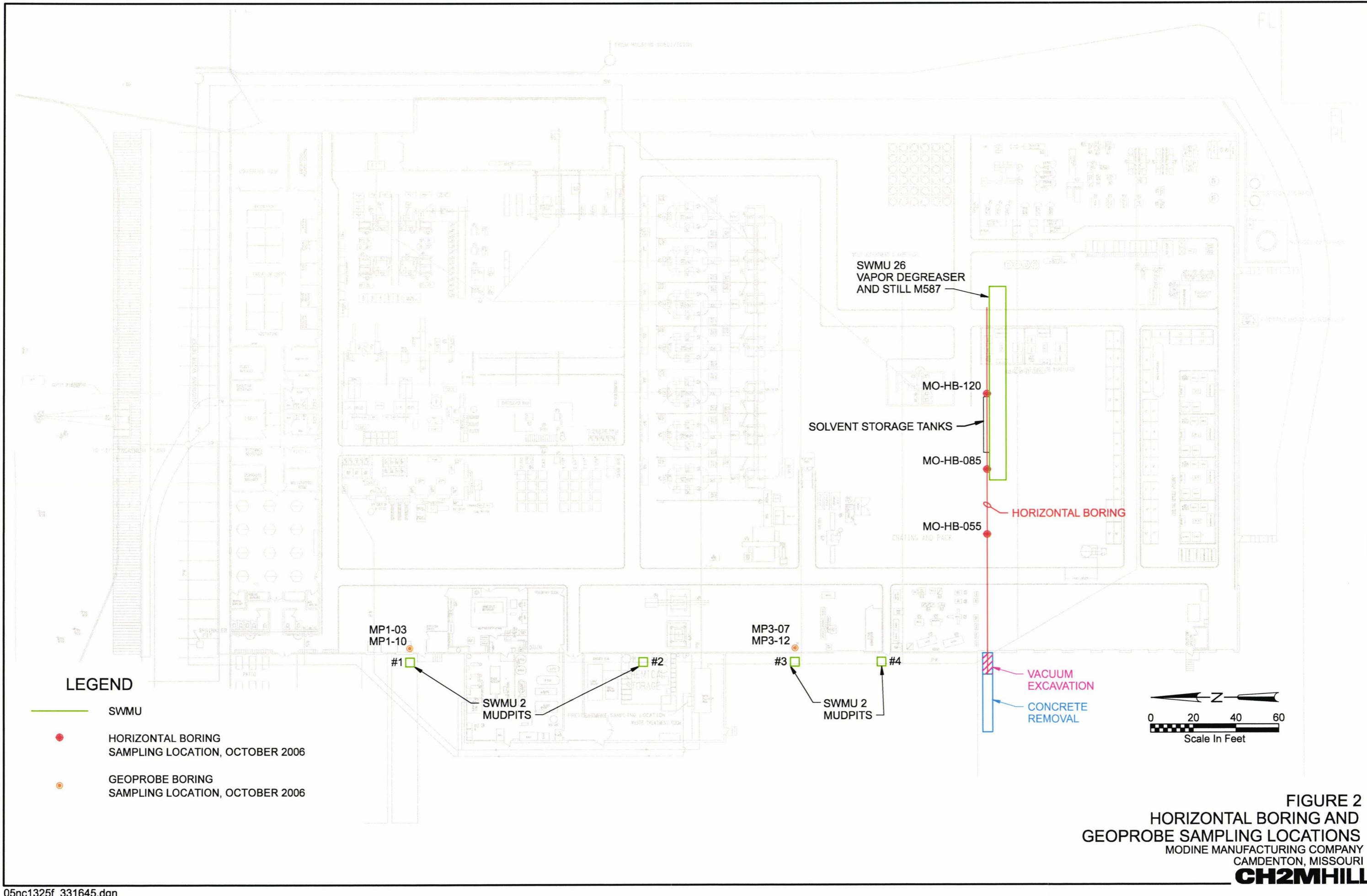


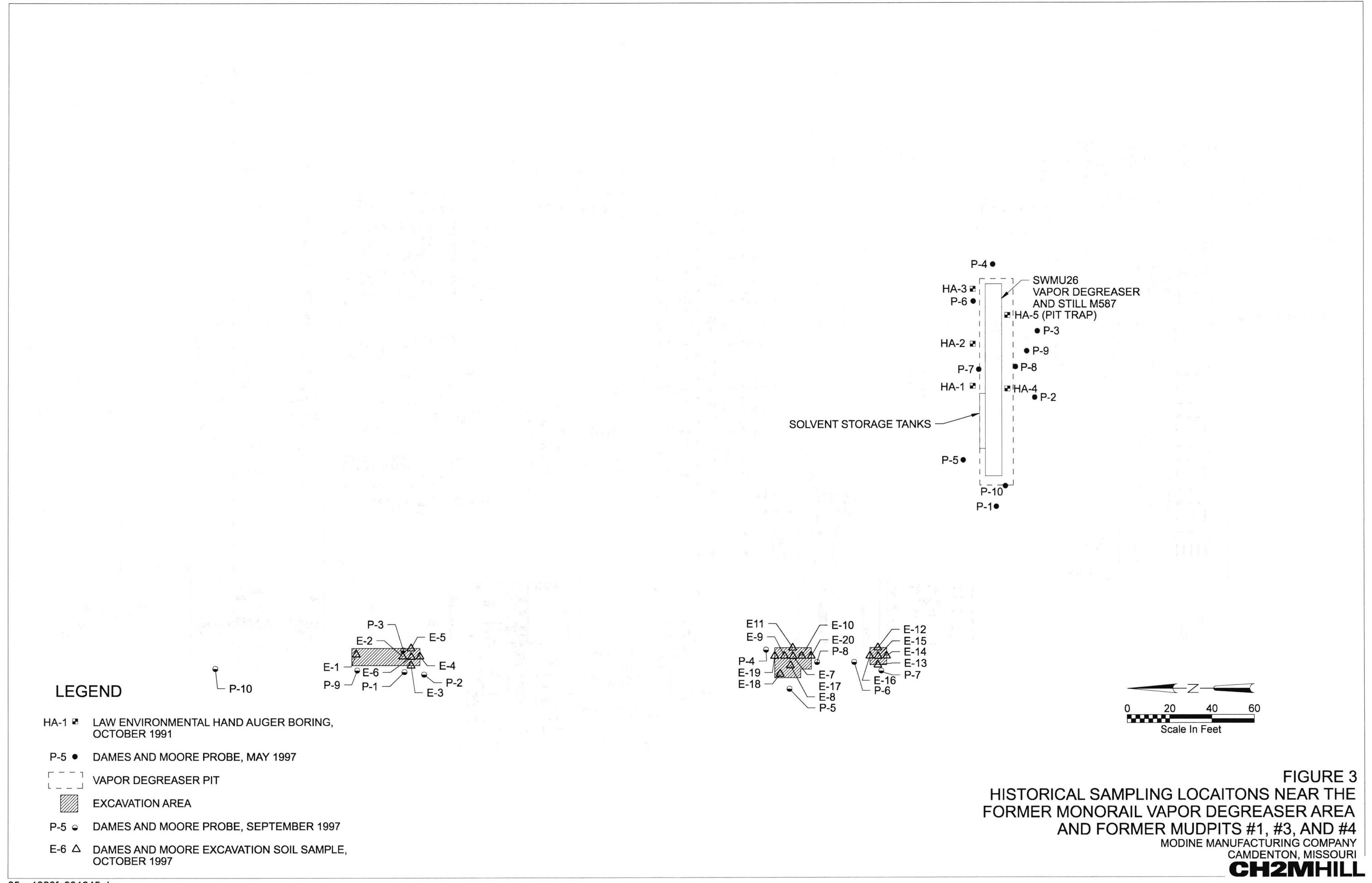
↑ Z

NOT TO SCALE

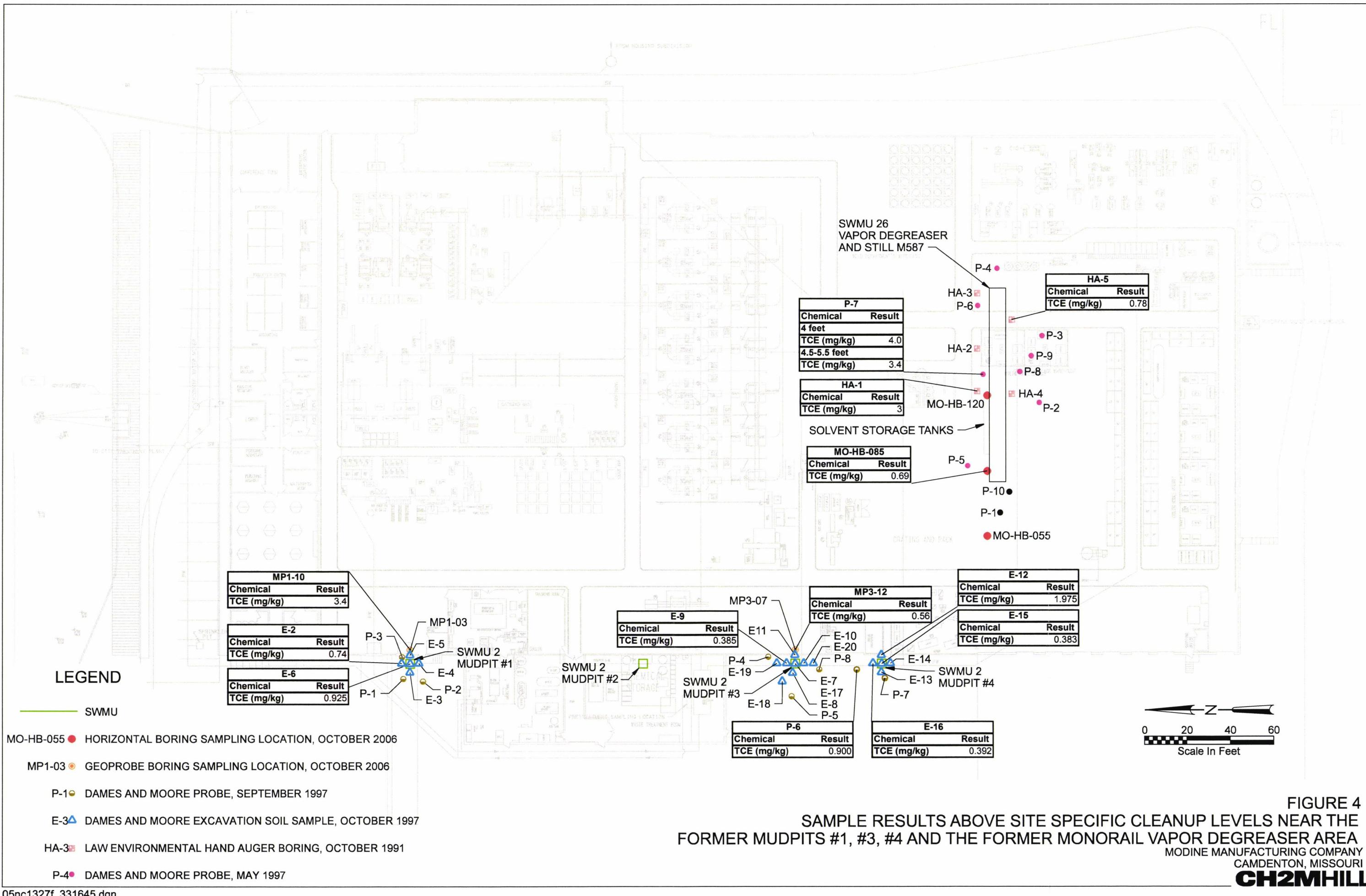
FIGURE 1  
SITE LOCATION MAP  
MODINE MANUFACTURING COMPANY  
CAMDEN, MISSOURI

**CH2MHILL**

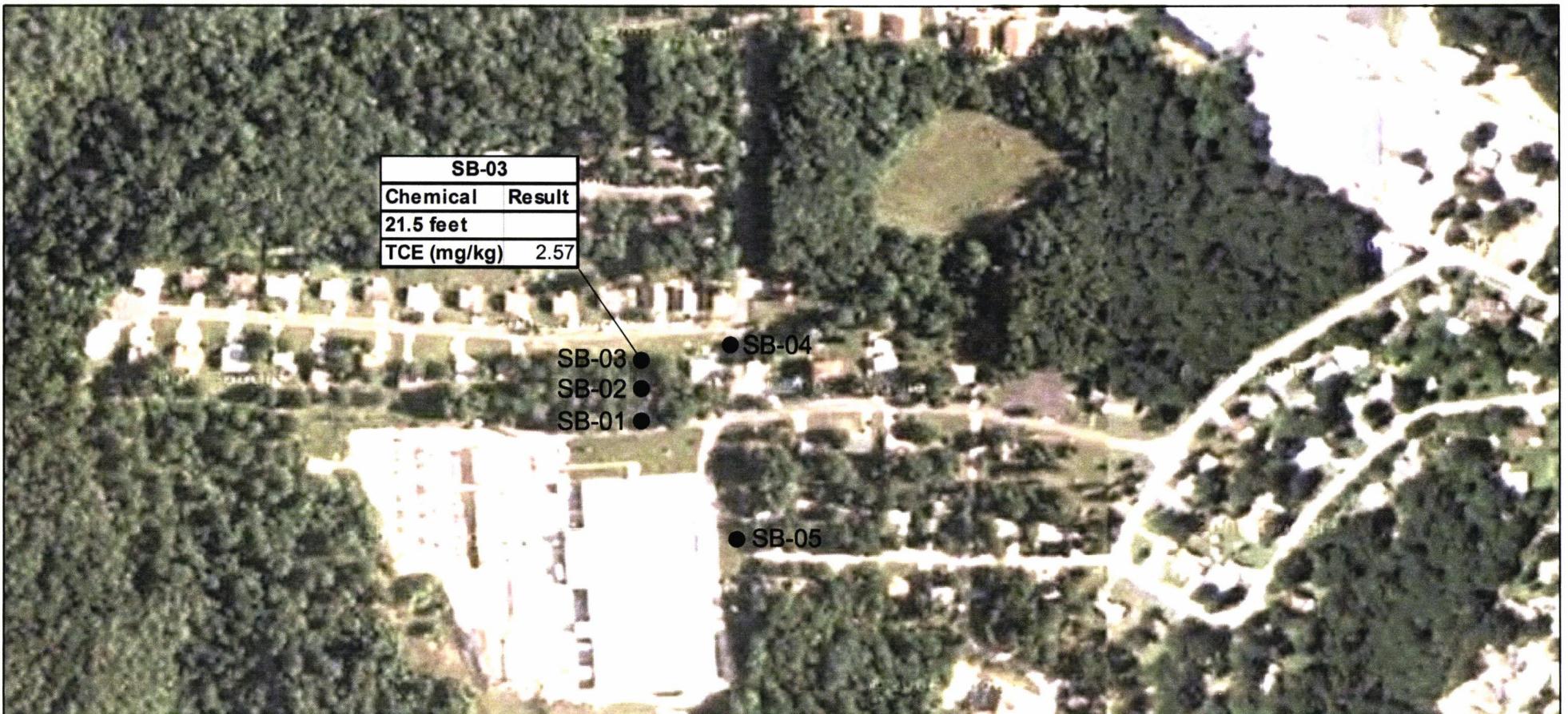




**FIGURE 3**  
**HISTORICAL SAMPLING LOCATIONS NEAR THE  
FORMER MONORAIL VAPOR DEGREASER AREA  
AND FORMER MUDPITS #1, #3, AND #4**  
**MODINE MANUFACTURING COMPANY**  
**CAMDENTON, MISSOURI**



SAMPLE RESULTS ABOVE SITE SPECIFIC CLEANUP LEVELS NEAR THE FORMER MUDPITS #1, #3, #4 AND THE FORMER MONORAIL VAPOR DEGREASER AREA

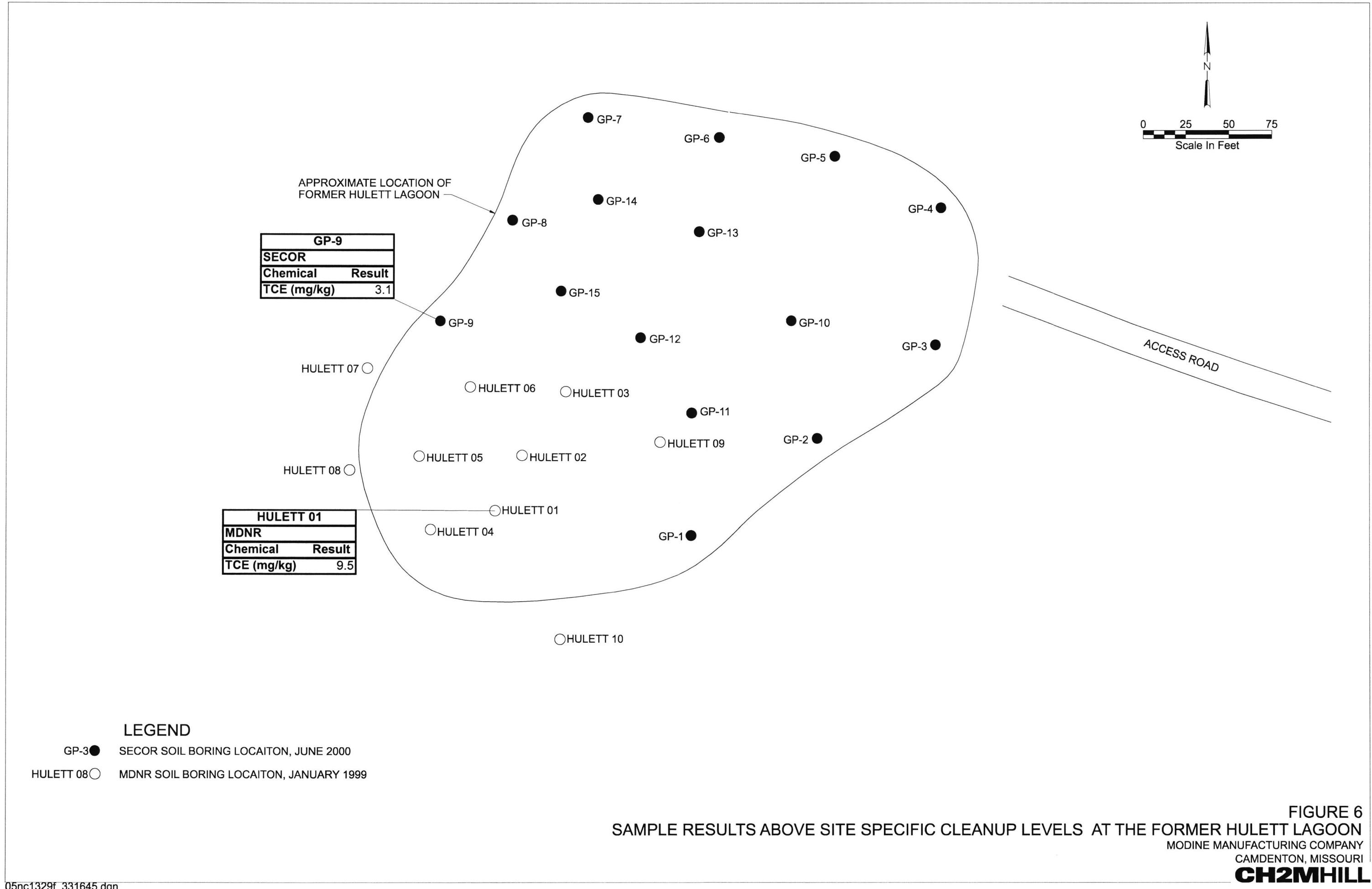


NOT TO SCALE

**FIGURE 5**  
SAMPLE RESULTS ABOVE SITE SPECIFIC CLEANUP LEVELS ALONG THE OFF-SITE SEWER LINE

MODINE MANUFACTURING COMPANY  
CAMDENTON, MISSOURI

**CH2MHILL**



**Appendix A**  
**Laboratory Results**

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SEVERN  
TRENT

STL

STL St. Louis  
13715 Rider Trail North  
Earth City, MO 63045

Tel: 314 298 8566 Fax: 314 298 8757  
[www.stl-inc.com](http://www.stl-inc.com)

## ANALYTICAL REPORT

REVISED

Modine Manufacturing

Lot #: F6J270118

Dawn Townsen

CH2M Hill Inc  
727 North First Street  
Suite 400  
St. Louis, MO 63102

SEVERN TRENT LABORATORIES, INC.

  
Brian O'Donnell  
Project Manager

November 22, 2006

LOT#

Leaders in Environmental Testing

REVISED

Severn Trent Laboratories, Inc.

1 of 63

**Case Narrative**  
**LOT NUMBER: F6J270118**  
**REVISED 11/22/06**

This report contains the analytical results for the 10 samples received under chain of custody by STL St. Louis on October 27, 2006. These samples are associated with your Modine Manufacturing project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Revision: This report now includes results for cis-1,2-Dichloroethene analysis.

**Observations/Nonconformances**

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

**Volatiles by 8260B**

Batch 6303509-The LCS/LCSD recoveries are outside QC limits for less than 10% of the compounds spiked. Laboratory QC practices, based on federal guidance documents, allow for up to 10% of the spike compounds to be outside QC criteria without necessitating re-preparation/re-analysis. Sample purge efficiency and compliance is demonstrated by the remaining acceptable LCS/LCSD recoveries.

The LCS/LCSD RPD is not within method acceptance criteria. LCS/LCSD recoveries are within QC limits demonstrating good extraction performance in the sample matrix. No further action is required.

The MS/MSD recoveries are outside QC limits for less than 10% of the compounds spiked. Laboratory QC practices, based on federal guidance documents, allow for up to 10% of the spike compounds to be outside QC criteria without necessitating re-preparation/re-analysis. Sample purge efficiency and compliance is demonstrated by the remaining acceptable MS/MSD recoveries.

**Affected Samples:**

F6J270118 (3): 102506-TB

Batch 6305192- The LCS recoveries are outside QC limits for less than 10% of the compounds spiked. Laboratory QC practices, based on federal guidance documents, allow for up to 10% of the spike compounds to be outside QC criteria without necessitating re-preparation/re-analysis. Sample purge efficiency and compliance is demonstrated by the remaining acceptable LCS recoveries.

**Affected Samples:**

F6J270118 (2): MO-HB-085  
F6J270118 (6): MO-MP11-10  
F6J270118 (7): MO-MP1-10FD

F6J270118 (8): MO-MP1-03  
F6J270118 (10): MO-MP3-12

Batch 6305190-The MS/MSD RPD is not within method acceptance criteria. MS/MSD recoveries are also outside QC limits. However, the MS recoveries are outside QC limits for less than 10% of the

compounds spiked. Laboratory QC practices, based on federal guidance documents, allow for up to 10% of the spike compounds to be outside QC criteria without necessitating re-preparation/re-analysis. The LCS recoveries are outside QC limits for less than 10% of the compounds spiked. Laboratory QC practices, based on federal guidance documents, allow for up to 10% of the spike compounds to be outside QC criteria without necessitating re-preparation/re-analysis. Sample purge efficiency and compliance is demonstrated by the remaining acceptable LCS recoveries.

Sample purge efficiency and compliance is demonstrated by the remaining acceptable MS recoveries. No further action is required.

**Affected Samples:**

F6J270118 (8): MO-MP1-03

Batch 6302043-The LCS recoveries are outside QC limits for less than 10% of the compounds spiked. Laboratory QC practices, based on federal guidance documents, allow for up to 10% of the spike compounds to be outside QC criteria without necessitating re-preparation/re-analysis. Sample purge efficiency and compliance is demonstrated by the remaining acceptable LCS recoveries.

The MS/MSD RPD is not within method acceptance criteria. MS/MSD recoveries are also outside QC limits. However, the MS recoveries are outside QC limits for less than 10% of the compounds spiked. Laboratory QC practices, based on federal guidance documents, allow for up to 10% of the spike compounds to be outside QC criteria without necessitating re-preparation/re-analysis. Sample purge efficiency and compliance is demonstrated by the remaining acceptable MS recoveries. No further action is required.

**Affected Samples:**

F6J270118 (1): MO-HB-055  
F6J270118 (2): MO-HB-085  
F6J270118 (4): MO-HB-120  
F6J270118 (5): MO-HB-120FD  
F6J270118 (6): MO-MP11-10

F6J270118 (7): MO-MP1-10FD  
F6J270118 (8): MO-MP1-03  
F6J270118 (9): MO-MP3-07  
F6J270118 (10): MO-MP3-12

Batch 6305192-High concentrations of analytes were observed in the original low-level analysis. The samples have been reanalyzed after methanol extraction. The reporting limit has been adjusted only for those targets above calibration range in the original run.

**Affected Samples:**

F6J270118 (8): MO-MP1-03

**METHODS SUMMARY**

F6J270118

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826
Volatile Organics by GC/MS	SW846 8260B	SW846 5035

**References:**

- MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

**SAMPLE SUMMARY**

F6J270118

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
JHDRV	001	MO-HB-055	10/25/06	14:30
JHDR1	002	MO-HB-085	10/25/06	16:30
JHDR6	003	102506-TB	10/25/06	
JHDR8	004	MO-HB-120	10/26/06	09:40
JHDTA	005	MO-HB-120FD	10/26/06	09:41
JHDTH	006	MO-MP11-10	10/26/06	13:30
JHDTA	007	MO-MP1-10FD	10/26/06	13:31
JHDTL	008	MO-MP1-03	10/26/06	13:00
JHDTM	009	MO-MP3-07	10/26/06	16:10
JHDTN	010	MO-MP3-12	10/26/06	16:20

**NOTE(S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

## CH2M Hill Inc

Client Sample ID: MO-HB-055

## GC/MS Volatiles

Lot-Sample #....: F6J270118-001 Work Order #....: JHDRV1AD Matrix.....: SOLID  
 Date Sampled....: 10/25/06 14:30 Date Received...: 10/27/06  
 Prep Date.....: 10/27/06 Analysis Date...: 10/27/06  
 Prep Batch #....: 6302043 Analysis Time...: 18:10  
 Dilution Factor: 1  
 % Moisture.....: 13 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Bromodichloromethane	ND	5.7	ug/kg	0.38
Bromoform	ND	5.7	ug/kg	0.28
Carbon tetrachloride	ND	5.7	ug/kg	1.0
Chlorobenzene	ND	5.7	ug/kg	0.14
Dibromochloromethane	ND	5.7	ug/kg	0.33
Chloroethane	ND	11	ug/kg	0.40
2-Chloroethyl vinyl ether	ND	23	ug/kg	0.94
Chloroform	ND	5.7	ug/kg	0.16
Chloromethane	ND	11	ug/kg	0.51
1,2-Dichlorobenzene	ND	5.7	ug/kg	0.17
1,3-Dichlorobenzene	ND	5.7	ug/kg	0.15
1,4-Dichlorobenzene	ND	5.7	ug/kg	0.12
1,1-Dichloroethane	1.9 J	5.7	ug/kg	1.1
1,2-Dichloroethane	ND	5.7	ug/kg	0.50
cis-1,2-Dichloroethene	3.1 J	5.7	ug/kg	0.49
trans-1,2-Dichloroethene	ND	5.7	ug/kg	0.25
1,1-Dichloroethene	1.6 J	5.7	ug/kg	0.63
1,2-Dichloropropane	ND	5.7	ug/kg	0.43
1,3-Dichloropropane	ND	5.7	ug/kg	0.21
trans-1,3-Dichloropropene	ND	5.7	ug/kg	0.23
Methylene chloride	ND	5.7	ug/kg	2.9
1,1,2,2-Tetrachloroethane	ND	5.7	ug/kg	0.16
Tetrachloroethene	ND	5.7	ug/kg	0.31
1,1,1-Trichloroethane	ND	5.7	ug/kg	0.17
1,1,2-Trichloroethane	ND	5.7	ug/kg	0.32
Trichloroethene	39	5.7	ug/kg	0.41
Trichlorofluoromethane	ND	5.7	ug/kg	0.58
Vinyl chloride	ND	5.7	ug/kg	0.27

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	99	(59 - 150)
Dibromofluoromethane	87	(26 - 150)
1,2-Dichloroethane-d4	78	(65 - 146)
4-Bromofluorobenzene	94	(39 - 150)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

CH2M Hill Inc

Client Sample ID: MO-HB-055

## General Chemistry

Lot-Sample #....: F6J270118-001    Work Order #....: JHDRV                      Matrix.....: SOLID  
Date Sampled....: 10/25/06 14:30    Date Received...: 10/27/06  
% Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-	PREP
					ANALYSIS DATE	BATCH #
Percent Moisture	12.9	0.10	%	MCANW 160.3 MOD	10/31-11/01/06	6304054
		Dilution Factor: 1		Analysis Time...: 00:00		MDL.....

## CH2M Hill Inc

Client Sample ID: MO-HB-085

## GC/MS Volatiles

Lot-Sample #....: F6J270118-002 Work Order #....: JHDR11AD Matrix.....: SOLID  
 Date Sampled....: 10/25/06 16:30 Date Received...: 10/27/06  
 Prep Date.....: 10/27/06 Analysis Date...: 10/27/06  
 Prep Batch #....: 6302043 Analysis Time...: 18:34  
 Dilution Factor: 1  
 % Moisture.....: 13 Method.....: SW846 8260B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Bromodichloromethane	ND	5.8	ug/kg	0.38
Bromoform	ND	5.8	ug/kg	0.28
Carbon tetrachloride	ND	5.8	ug/kg	1.0
Chlorobenzene	ND	5.8	ug/kg	0.14
Dibromochloromethane	ND	5.8	ug/kg	0.33
Chloroethane	ND	12	ug/kg	0.40
2-Chloroethyl vinyl ether	ND	23	ug/kg	0.94
Chloroform	0.67 J	5.8	ug/kg	0.16
Chloromethane	ND	12	ug/kg	0.51
1,2-Dichlorobenzene	ND	5.8	ug/kg	0.17
1,3-Dichlorobenzene	ND	5.8	ug/kg	0.15
1,4-Dichlorobenzene	ND	5.8	ug/kg	0.12
1,1-Dichloroethane	9.3	5.8	ug/kg	1.1
1,2-Dichloroethane	ND	5.8	ug/kg	0.50
cis-1,2-Dichloroethene	64	5.8	ug/kg	0.49
trans-1,2-Dichloroethene	ND	5.8	ug/kg	0.25
1,1-Dichloroethene	95	5.8	ug/kg	0.63
1,2-Dichloropropane	ND	5.8	ug/kg	0.43
1,3-Dichloropropane	ND	5.8	ug/kg	0.21
trans-1,3-Dichloropropene	ND	5.8	ug/kg	0.23
Methylene chloride	ND	5.8	ug/kg	2.9
1,1,2,2-Tetrachloroethane	ND	5.8	ug/kg	0.16
Tetrachloroethene	6.7	5.8	ug/kg	0.32
1,1,1-Trichloroethane	ND	5.8	ug/kg	0.17
1,1,2-Trichloroethane	ND	5.8	ug/kg	0.33
Trichloroethene	490 E	5.8	ug/kg	0.41
Trichlorofluoromethane	ND	5.8	ug/kg	0.58
Vinyl chloride	ND	5.8	ug/kg	0.27

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	109	(59 - 150)
Dibromofluoromethane	96	(26 - 150)
1,2-Dichloroethane-d4	88	(65 - 146)
4-Bromofluorobenzene	100	(39 - 150)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

E Estimated result. Result concentration exceeds the calibration range.

## CH2M Hill Inc

Client Sample ID: MO-HB-085

## GC/MS Volatiles

Lot-Sample #....: F6J270118-002 Work Order #....: JHDR12AD Matrix.....: SOLID  
 Date Sampled....: 10/25/06 16:30 Date Received...: 10/27/06  
 Prep Date.....: 10/31/06 Analysis Date...: 10/31/06  
 Prep Batch #....: 6305192 Analysis Time...: 19:44  
 Dilution Factor: 1  
 \* Moisture.....: 13 Method.....: SW846 8260B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Bromodichloromethane	ND	5.8	ug/kg	34
Bromoform	ND	5.8	ug/kg	55
Carbon tetrachloride	ND	5.8	ug/kg	60
Chlorobenzene	ND	5.8	ug/kg	37
Dibromochloromethane	ND	5.8	ug/kg	32
Chloroethane	ND	12	ug/kg	24
2-Chloroethyl vinyl ether	ND	23	ug/kg	100
Chloroform	ND	5.8	ug/kg	49
Chloromethane	ND	12	ug/kg	59
1,2-Dichlorobenzene	ND	5.8	ug/kg	55
1,3-Dichlorobenzene	ND	5.8	ug/kg	43
1,4-Dichlorobenzene	ND	5.8	ug/kg	37
1,1-Dichloroethane	ND	5.8	ug/kg	83
1,2-Dichloroethane	ND	5.8	ug/kg	92
1,1-Dichloroethene	120	5.8	ug/kg	67
trans-1,2-Dichloroethene	ND	5.8	ug/kg	100
1,2-Dichloropropane	ND	5.8	ug/kg	38
1,3-Dichloropropane	ND	5.8	ug/kg	59
trans-1,3-Dichloropropene	ND	5.8	ug/kg	97
Trichlorofluoromethane	ND	5.8	ug/kg	54
Methylene chloride	ND	5.8	ug/kg	53
1,1,2,2-Tetrachloroethane	ND	5.8	ug/kg	16
Tetrachloroethene	ND	5.8	ug/kg	60
1,1,1-Trichloroethane	ND	5.8	ug/kg	48
1,1,2-Trichloroethane	ND	5.8	ug/kg	62
Trichloroethene	690	5.8	ug/kg	43
Vinyl chloride	ND	5.8	ug/kg	150
cis-1,2-Dichloroethene	120 J	290	ug/kg	75

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	100	(57 - 139)
Dibromofluoromethane	81	(30 - 150)
1,2-Dichloroethane-d4	76	(51 - 141)
4-Bromofluorobenzene	96	(30 - 150)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

CH2M Hill Inc

Client Sample ID: MO-HB-085

## General Chemistry

Lot-Sample #....: F6J270118-002   Work Order #....: JHDR1      Matrix.....: SOLID  
Date Sampled....: 10/25/06 16:30   Date Received..: 10/27/06  
% Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-	PREP
					ANALYSIS DATE	BATCH #
Percent Moisture	13.1	0.10	%	MCAWW 160.3 MOD	10/31-11/01/06	6304054
		Dilution Factor: 1		Analysis Time...: 00:00		MDL.....:

## CH2M Hill Inc

Client Sample ID: 102506-TB

## GC/MS Volatiles

Lot-Sample #....: F6J270118-003    Work Order #....: JHDR61AA    Matrix.....: WATER  
 Date Sampled....: 10/25/06    Date Received...: 10/27/06  
 Prep Date.....: 10/30/06    Analysis Date...: 10/30/06  
 Prep Batch #....: 6303509    Analysis Time...: 16:50  
 Dilution Factor: 1  
 Method.....: SW846 8260B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Bromodichloromethane	ND	5.0	ug/L	0.33
Bromoform	ND	5.0	ug/L	0.24
Carbon tetrachloride	ND	5.0	ug/L	0.90
Chlorobenzene	ND	5.0	ug/L	0.12
Dibromochloromethane	ND	5.0	ug/L	0.29
Chloroethane	ND	10	ug/L	0.35
2-Chloroethyl vinyl ether	ND	20	ug/L	0.82
Chloroform	ND	5.0	ug/L	0.14
<b>Chloromethane</b>	<b>0.97 J</b>	<b>10</b>	<b>ug/L</b>	<b>0.44</b>
1,2-Dichlorobenzene	ND	5.0	ug/L	0.15
1,3-Dichlorobenzene	ND	5.0	ug/L	0.13
1,4-Dichlorobenzene	ND	5.0	ug/L	0.11
1,1-Dichloroethane	ND	5.0	ug/L	0.95
1,2-Dichloroethane	ND	5.0	ug/L	0.44
cis-1,2-Dichloroethene	ND	5.0	ug/L	0.43
trans-1,2-Dichloroethene	ND	5.0	ug/L	0.22
1,1-Dichloroethene	ND	5.0	ug/L	0.55
1,2-Dichloropropane	ND	5.0	ug/L	0.37
1,3-Dichloropropane	ND	5.0	ug/L	0.18
trans-1,3-Dichloropropene	ND	5.0	ug/L	0.20
Methylene chloride	ND	5.0	ug/L	2.5
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	0.14
Tetrachloroethene	ND	5.0	ug/L	0.27
1,1,1-Trichloroethane	ND	5.0	ug/L	0.15
1,1,2-Trichloroethane	ND	5.0	ug/L	0.28
Trichloroethene	ND	5.0	ug/L	0.36
Trichlorofluoromethane	ND	5.0	ug/L	0.50
Vinyl chloride	ND	5.0	ug/L	0.24

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	112	(68 - 133)
Dibromofluoromethane	96	(74 - 129)
1,2-Dichloroethane-d4	89	(69 - 132)
4-Bromofluorobenzene	111	(64 - 130)

NOTE (S) :

J Estimated result. Result is less than RL.

## CH2M Hill Inc

Client Sample ID: MO-HB-120

## GC/MS Volatiles

Lot-Sample #....: F6J270118-004 Work Order #....: JHDR81AD Matrix.....: SOLID  
 Date Sampled...: 10/26/06 09:40 Date Received...: 10/27/06  
 Prep Date.....: 10/27/06 Analysis Date...: 10/27/06  
 Prep Batch #....: 6302043 Analysis Time...: 18:59  
 Dilution Factor: 1  
 % Moisture.....: 22 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Bromodichloromethane	ND	6.4	ug/kg	0.43
Bromoform	ND	6.4	ug/kg	0.31
Carbon tetrachloride	ND	6.4	ug/kg	1.2
Chlorobenzene	ND	6.4	ug/kg	0.16
Dibromochloromethane	ND	6.4	ug/kg	0.37
Chloroethane	ND	13	ug/kg	0.45
2-Chloroethyl vinyl ether	ND	26	ug/kg	1.0
Chloroform	0.73 J	6.4	ug/kg	0.18
Chloromethane	ND	13	ug/kg	0.57
1,2-Dichlorobenzene	ND	6.4	ug/kg	0.19
1,3-Dichlorobenzene	ND	6.4	ug/kg	0.17
1,4-Dichlorobenzene	ND	6.4	ug/kg	0.14
1,1-Dichloroethane	9.6	6.4	ug/kg	1.2
1,2-Dichloroethane	ND	6.4	ug/kg	0.56
cis-1,2-Dichloroethene	31	6.4	ug/kg	0.55
trans-1,2-Dichloroethene	ND	6.4	ug/kg	0.28
1,1-Dichloroethene	37	6.4	ug/kg	0.70
1,2-Dichloropropane	ND	6.4	ug/kg	0.48
1,3-Dichloropropane	ND	6.4	ug/kg	0.23
trans-1,3-Dichloropropene	ND	6.4	ug/kg	0.26
Methylene chloride	ND	6.4	ug/kg	3.2
1,1,2,2-Tetrachloroethane	ND	6.4	ug/kg	0.18
Tetrachloroethene	19	6.4	ug/kg	0.35
1,1,1-Trichloroethane	210	6.4	ug/kg	0.19
1,1,2-Trichloroethane	ND	6.4	ug/kg	0.36
Trichloroethene	150	6.4	ug/kg	0.46
Trichlorofluoromethane	ND	6.4	ug/kg	0.64
Vinyl chloride	ND	6.4	ug/kg	0.30

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	91	(59 - 150)
Dibromofluoromethane	88	(26 - 150)
1,2-Dichloroethane-d4	80	(65 - 146)
4-Bromofluorobenzene	80	(39 - 150)

**NOTE(S) :**

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

CH2M Hill Inc

Client Sample ID: MO-HB-120

## General Chemistry

Lot-Sample #....: F6J270118-004 Work Order #....: JHDR8

Matrix.....: SOLID

Date Sampled....: 10/26/06 09:40

Date Received..: 10/27/06

% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-	PREP
					ANALYSIS DATE	BATCH #
Percent Moisture	21.7	0.10	%	MCAWW 160.3 MOD	10/31-11/01/06	6304054
		Dilution Factor:	1	Analysis Time..:	00:00	MDL.....

## CH2M Hill Inc

Client Sample ID: MO-HB-120FD

## GC/MS Volatiles

Lot-Sample #....: F6J270118-005 Work Order #....: JHDTc1AD **Matrix.....: SOLID**  
 Date Sampled....: 10/26/06 09:41 Date Received...: 10/27/06  
 Prep Date.....: 10/27/06 Analysis Date...: 10/27/06  
 Prep Batch #....: 6302043 Analysis Time...: 19:23  
 Dilution Factor: 1  
 % Moisture.....: 22 Method.....: SW846 8260B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Bromodichloromethane	ND	6.4	ug/kg	0.43
Bromoform	ND	6.4	ug/kg	0.31
Carbon tetrachloride	ND	6.4	ug/kg	1.2
Chlorobenzene	ND	6.4	ug/kg	0.16
Dibromochloromethane	ND	6.4	ug/kg	0.37
Chloroethane	ND	13	ug/kg	0.45
2-Chloroethyl vinyl ether	ND	25	ug/kg	1.0
Chloroform	0.58 J	6.4	ug/kg	0.18
Chloromethane	ND	13	ug/kg	0.57
1,2-Dichlorobenzene	ND	6.4	ug/kg	0.19
1,3-Dichlorobenzene	ND	6.4	ug/kg	0.17
1,4-Dichlorobenzene	ND	6.4	ug/kg	0.14
1,1-Dichloroethane	4.5 J	6.4	ug/kg	1.2
1,2-Dichloroethane	ND	6.4	ug/kg	0.56
cis-1,2-Dichloroethene	2.6 J	6.4	ug/kg	0.55
trans-1,2-Dichloroethene	ND	6.4	ug/kg	0.28
1,1-Dichloroethene	33	6.4	ug/kg	0.70
1,2-Dichloropropane	ND	6.4	ug/kg	0.48
1,3-Dichloropropane	ND	6.4	ug/kg	0.23
trans-1,3-Dichloropropene	ND	6.4	ug/kg	0.26
Methylene chloride	ND	6.4	ug/kg	3.2
1,1,2,2-Tetrachloroethane	ND	6.4	ug/kg	0.18
Tetrachloroethene	14	6.4	ug/kg	0.35
1,1,1-Trichloroethane	120	6.4	ug/kg	0.19
1,1,2-Trichloroethane	ND	6.4	ug/kg	0.36
Trichloroethene	240	6.4	ug/kg	0.46
Trichlorofluoromethane	ND	6.4	ug/kg	0.64
Vinyl chloride	ND	6.4	ug/kg	0.30

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	80	(59 - 150)
Dibromofluoromethane	85	(26 - 150)
1,2-Dichloroethane-d4	79	(65 - 146)
4-Bromofluorobenzene	66	(39 - 150)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

CH2M Hill Inc

Client Sample ID: MO-HB-120FD

## General Chemistry

Lot-Sample #....: F6J270118-005 Work Order #....: JHDTC  
Date Sampled....: 10/26/06 09:41 Date Received...: 10/27/06  
% Moisture.....: 22

Matrix.....: SOLID

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-	PREP
					ANALYSIS DATE	BATCH #
Percent Moisture	21.6	0.10	%	MCAWW 160.3 MOD	10/31-11/01/06	6304054
		Dilution Factor:	1	Analysis Time..:	00:00	MDL.....:

## CH2M Hill Inc

Client Sample ID: MO-MP11-10

## GC/MS Volatiles

Lot-Sample #....: F6J270118-006 Work Order #....: JHDTD1AD Matrix.....: SOLID  
 Date Sampled....: 10/26/06 13:30 Date Received...: 10/27/06  
 Prep Date.....: 10/27/06 Analysis Date...: 10/27/06  
 Prep Batch #....: 6302043 Analysis Time...: 19:48  
 Dilution Factor: 1  
 \* Moisture.....: 15 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Bromodichloromethane	ND	5.9	ug/kg	0.39
Bromoform	ND	5.9	ug/kg	0.29
Carbon tetrachloride	ND	5.9	ug/kg	1.1
Chlorobenzene	ND	5.9	ug/kg	0.15
Dibromochloromethane	ND	5.9	ug/kg	0.34
Chloroethane	ND	12	ug/kg	0.41
2-Chloroethyl vinyl ether	ND	24	ug/kg	0.97
Chloroform	1.9 J	5.9	ug/kg	0.17
Chloromethane	ND	12	ug/kg	0.52
1,2-Dichlorobenzene	ND	5.9	ug/kg	0.18
1,3-Dichlorobenzene	ND	5.9	ug/kg	0.15
1,4-Dichlorobenzene	ND	5.9	ug/kg	0.13
1,1-Dichloroethane	ND	5.9	ug/kg	1.1
1,2-Dichloroethane	ND	5.9	ug/kg	0.52
cis-1,2-Dichloroethene	1000 E	5.9	ug/kg	0.51
trans-1,2-Dichloroethene	5.7 J	5.9	ug/kg	0.26
1,1-Dichloroethene	1.3 J	5.9	ug/kg	0.65
1,2-Dichloropropane	ND	5.9	ug/kg	0.44
1,3-Dichloropropane	ND	5.9	ug/kg	0.21
trans-1,3-Dichloropropene	ND	5.9	ug/kg	0.24
Methylene chloride	ND	5.9	ug/kg	3.0
1,1,2,2-Tetrachloroethane	ND	5.9	ug/kg	0.17
Tetrachloroethene	120	5.9	ug/kg	0.32
1,1,1-Trichloroethane	ND	5.9	ug/kg	0.17
1,1,2-Trichloroethane	2.6 J	5.9	ug/kg	0.33
Trichloroethene	1900 E	5.9	ug/kg	0.42
Trichlorofluoromethane	ND	5.9	ug/kg	0.59
Vinyl chloride	6.8	5.9	ug/kg	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	89	(59 - 150)
Dibromofluoromethane	86	(26 - 150)
1,2-Dichloroethane-d4	77	(65 - 146)
4-Bromofluorobenzene	89	(39 - 150)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

E Estimated result. Result concentration exceeds the calibration range.

## CH2M Hill Inc

Client Sample ID: MO-MP11-10

## GC/MS Volatiles

Lot-Sample #....: F6J270118-006 Work Order #....: JHDTD2AD Matrix.....: SOLID  
 Date Sampled....: 10/26/06 13:30 Date Received...: 10/27/06  
 Prep Date.....: 10/31/06 Analysis Date...: 10/31/06  
 Prep Batch #....: 6305192 Analysis Time...: 18:31  
 Dilution Factor: 1  
 % Moisture.....: 15 Method.....: SW846 8260B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Trichloroethene	3400	5.9	ug/kg	44
cis-1,2-Dichloroethene	1000	300	ug/kg	77

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	102	(57 - 139)
Dibromofluoromethane	84	(30 - 150)
1,2-Dichloroethane-d4	78	(51 - 141)
4-Bromofluorobenzene	103	(30 - 150)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

## CH2M Hill Inc

Client Sample ID: MO-MP11-10

## General Chemistry

Lot-Sample #....: F6J270118-006 Work Order #....: JHDTD  
Date Sampled....: 10/26/06 13:30 Date Received...: 10/27/06  
% Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-	PREP
					ANALYSIS DATE	BATCH #
Percent Moisture	15.3	0.10	%	MCAWW 160.3 MOD	10/31-11/01/06	6304054
	Dilution Factor: 1			Analysis Time...: 00:00		MDL.....:

## CH2M Hill Inc

Client Sample ID: MO-MP1-10FD

## GC/MS Volatiles

Lot-Sample #....: F6J270118-007 Work Order #....: JHDTH1AD Matrix.....: SOLID  
 Date Sampled....: 10/26/06 13:31 Date Received...: 10/27/06  
 Prep Date.....: 10/27/06 Analysis Date...: 10/27/06  
 Prep Batch #....: 6302043 Analysis Time...: 20:12  
 Dilution Factor: 1  
 % Moisture.....: 11 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Bromodichloromethane	ND	5.6	ug/kg	0.38
Bromoform	ND	5.6	ug/kg	0.27
Carbon tetrachloride	ND	5.6	ug/kg	1.0
Chlorobenzene	ND	5.6	ug/kg	0.14
Dibromochloromethane	ND	5.6	ug/kg	0.32
Chloroethane	ND	11	ug/kg	0.40
2-Chloroethyl vinyl ether	ND	23	ug/kg	0.92
Chloroform	1.4 J	5.6	ug/kg	0.16
Chloromethane	ND	11	ug/kg	0.50
1,2-Dichlorobenzene	ND	5.6	ug/kg	0.17
1,3-Dichlorobenzene	ND	5.6	ug/kg	0.15
1,4-Dichlorobenzene	ND	5.6	ug/kg	0.12
1,1-Dichloroethane	ND	5.6	ug/kg	1.1
1,2-Dichloroethane	ND	5.6	ug/kg	0.49
cis-1,2-Dichloroethene	750 E	5.6	ug/kg	0.48
trans-1,2-Dichloroethene	3.7 J	5.6	ug/kg	0.25
1,1-Dichloroethene	0.72 J	5.6	ug/kg	0.62
1,2-Dichloropropane	ND	5.6	ug/kg	0.42
1,3-Dichloropropane	ND	5.6	ug/kg	0.20
trans-1,3-Dichloropropene	ND	5.6	ug/kg	0.23
Methylene chloride	ND	5.6	ug/kg	2.8
1,1,2,2-Tetrachloroethane	ND	5.6	ug/kg	0.16
Tetrachloroethene	110	5.6	ug/kg	0.31
1,1,1-Trichloroethane	ND	5.6	ug/kg	0.16
1,1,2-Trichloroethane	2.1 J	5.6	ug/kg	0.32
Trichloroethene	1500 E	5.6	ug/kg	0.40
Trichlorofluoromethane	ND	5.6	ug/kg	0.57
Vinyl chloride	3.0 J	5.6	ug/kg	0.27

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	92	(59 - 150)
Dibromofluoromethane	88	(26 - 150)
1,2-Dichloroethane-d4	79	(65 - 146)
4-Bromofluorobenzene	90	(39 - 150)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

E Estimated result. Result concentration exceeds the calibration range.

## CH2M Hill Inc

Client Sample ID: MO-MP1-10FD

## GC/MS Volatiles

Lot-Sample #....: F6J270118-007 Work Order #....: JHDTH2AD Matrix.....: SOLID  
 Date Sampled....: 10/26/06 13:31 Date Received...: 10/27/06  
 Prep Date.....: 10/31/06 Analysis Date...: 10/31/06  
 Prep Batch #....: 6305192 Analysis Time...: 18:55  
 Dilution Factor: 1  
 % Moisture.....: 11 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Trichloroethene	3200	5.6	ug/kg	42
cis-1,2-Dichloroethene	1200	280	ug/kg	73

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	98	(57 - 139)
Dibromofluoromethane	81	(30 - 150)
1,2-Dichloroethane-d4	77	(51 - 141)
4-Bromofluorobenzene	97	(30 - 150)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

CH2M Hill Inc

Client Sample ID: MO-MP1-10FD

## General Chemistry

Lot-Sample #....: F6J270118-007    Work Order #....: JHDTH                      Matrix.....: SOLID  
Date Sampled....: 10/26/06 13:31    Date Received...: 10/27/06  
% Moisture.....: 11

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-	PREP
					ANALYSIS DATE	BATCH #
Percent Moisture	11.2	0.10	%	MCAWW 160.3 MOD	10/31-11/01/06	6304054
		Dilution Factor: 1		Analysis Time...: 00:00		MDL.....:

## CH2M Hill Inc

Client Sample ID: MO-MP1-03

## GC/MS Volatiles

Lot-Sample #....: F6J270118-008 Work Order #....: JHDTL1AD **Matrix.....: SOLID**  
 Date Sampled....: 10/26/06 13:00 Date Received...: 10/27/06  
 Prep Date.....: 10/27/06 Analysis Date...: 10/27/06  
 Prep Batch #....: 6302043 Analysis Time...: 20:37  
 Dilution Factor: 1  
 % Moisture.....: 12 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Bromodichloromethane	ND	5.7	ug/kg	0.38
Bromoform	ND	5.7	ug/kg	0.28
Carbon tetrachloride	ND	5.7	ug/kg	1.0
Chlorobenzene	ND	5.7	ug/kg	0.14
Dibromochloromethane	ND	5.7	ug/kg	0.33
Chloroethane	ND	11	ug/kg	0.40
2-Chloroethyl vinyl ether	ND	23	ug/kg	0.93
Chloroform	ND	5.7	ug/kg	0.16
Chloromethane	ND	11	ug/kg	0.50
1,2-Dichlorobenzene	ND	5.7	ug/kg	0.17
1,3-Dichlorobenzene	ND	5.7	ug/kg	0.15
1,4-Dichlorobenzene	ND	5.7	ug/kg	0.12
1,1-Dichloroethane	ND	5.7	ug/kg	1.1
1,2-Dichloroethane	ND	5.7	ug/kg	0.50
cis-1,2-Dichloroethene	24	5.7	ug/kg	0.49
trans-1,2-Dichloroethene	ND	5.7	ug/kg	0.25
1,1-Dichloroethene	ND	5.7	ug/kg	0.62
1,2-Dichloropropane	ND	5.7	ug/kg	0.42
1,3-Dichloropropane	ND	5.7	ug/kg	0.20
trans-1,3-Dichloropropene	ND	5.7	ug/kg	0.23
Methylene chloride	ND	5.7	ug/kg	2.8
1,1,2,2-Tetrachloroethane	ND	5.7	ug/kg	0.16
Tetrachloroethene	17	5.7	ug/kg	0.31
1,1,1-Trichloroethane	ND	5.7	ug/kg	0.17
1,1,2-Trichloroethane	ND	5.7	ug/kg	0.32
Trichloroethene	110	5.7	ug/kg	0.41
Trichlorofluoromethane	ND	5.7	ug/kg	0.57
Vinyl chloride	ND	5.7	ug/kg	0.27

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	105	(59 - 150)
Dibromofluoromethane	94	(26 - 150)
1,2-Dichloroethane-d4	84	(65 - 146)
4-Bromofluorobenzene	99	(39 - 150)

**NOTE(S) :**

Results and reporting limits have been adjusted for dry weight.

## CH2M Hill Inc

Client Sample ID: MO-MP1-03

## GC/MS Volatiles

Lot-Sample #....: F6J270118-008    Work Order #....: JHDTL2AD    Matrix.....: SOLID  
 Date Sampled....: 10/26/06 13:00    Date Received...: 10/27/06  
 Prep Date.....: 10/31/06    Analysis Date...: 10/31/06  
 Prep Batch #....: 6305190    Analysis Time...: 17:17  
 Dilution Factor: 1  
 % Moisture.....: 12    Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Trichlorofluoromethane	ND	5.7	ug/kg	0.57
Vinyl chloride	3.1 J	5.7	ug/kg	0.27
trans-1,3-Dichloropropene	ND	5.7	ug/kg	0.23
1,1,1-Trichloroethane	ND	5.7	ug/kg	0.17
1,1,2-Trichloroethane	ND	5.7	ug/kg	0.32
Bromodichloromethane	ND	5.7	ug/kg	0.38
Bromoform	ND	5.7	ug/kg	0.28
Carbon tetrachloride	ND	5.7	ug/kg	1.0
Chlorobenzene	ND	5.7	ug/kg	0.14
Dibromochloromethane	ND	5.7	ug/kg	0.33
Chloroethane	ND	11	ug/kg	0.40
2-Chloroethyl vinyl ether	ND	23	ug/kg	0.93
Chloroform	ND	5.7	ug/kg	0.16
Chloromethane	ND	11	ug/kg	0.50
1,2-Dichlorobenzene	ND	5.7	ug/kg	0.17
1,3-Dichlorobenzene	ND	5.7	ug/kg	0.15
1,4-Dichlorobenzene	ND	5.7	ug/kg	0.12
1,1-Dichloroethane	ND	5.7	ug/kg	1.1
1,2-Dichloroethane	ND	5.7	ug/kg	0.50
trans-1,2-Dichloroethene	ND	5.7	ug/kg	0.25
1,1-Dichloroethene	ND	5.7	ug/kg	0.62
1,2-Dichloropropane	ND	5.7	ug/kg	0.42
1,3-Dichloropropane	ND	5.7	ug/kg	0.20
Methylene chloride	ND	5.7	ug/kg	2.8
1,1,2,2-Tetrachloroethane	ND	5.7	ug/kg	0.16
Tetrachloroethene	9.2	5.7	ug/kg	0.31
Trichloroethene	290 E	5.7	ug/kg	0.41
cis-1,2-Dichloroethene	96	5.7	ug/kg	0.49

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	113	(59 - 150)
Dibromofluoromethane	95	(26 - 150)
1,2-Dichloroethane-d4	97	(65 - 146)
4-Bromofluorobenzene	109	(39 - 150)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

E Estimated result. Result concentration exceeds the calibration range.

CH2M Hill Inc

Client Sample ID: MO-MP1-03

## GC/MS Volatiles

Lot-Sample #....: F6J270118-008    Work Order #....: JHDTL3AD    Matrix.....: SOLID  
 Date Sampled....: 10/26/06 13:00    Date Received...: 10/27/06  
 Prep Date.....: 10/31/06    Analysis Date...: 11/03/06  
 Prep Batch #....: 6305192    Analysis Time...: 19:40  
 Dilution Factor: 1  
 % Moisture.....: 12    Method.....: SW846 8260B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Trichloroethene	300 D	280	ug/kg	42
cis-1,2-Dichloroethene	78 J	280	ug/kg	74
<hr/>				
<u>SURROGATE</u>				
Toluene-d8	93	RECOVERY LIMITS		
Dibromofluoromethane	75	(57 - 139)		
1,2-Dichloroethane-d4	73	(30 - 150)		
4-Bromofluorobenzene	90	(51 - 141)		
(30 - 150)				

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

D Result was obtained from the analysis of a dilution.

J Estimated result. Result is less than RL.

CH2M Hill Inc

Client Sample ID: MO-MP1-03

## General Chemistry

Lot-Sample #....: F6J270118-008 Work Order #....: JHDTL Matrix.....: SOLID  
Date Sampled....: 10/26/06 13:00 Date Received...: 10/27/06  
% Moisture.....: 12

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION-</u>	<u>PREP</u>
					<u>ANALYSIS DATE</u>	<u>BATCH #</u>
Percent Moisture	11.8	0.10	%	MCAWW 160.3 MOD	10/31-11/01/06	6304054
		Dilution Factor: 1		Analysis Time...: 00:00		MDL.....:

## CH2M Hill Inc

Client Sample ID: MO-MP3-07

## GC/MS Volatiles

Lot-Sample #....: F6J270118-009 Work Order #....: JHDTM1AD Matrix.....: SOLID  
 Date Sampled....: 10/26/06 16:10 Date Received...: 10/27/06  
 Prep Date.....: 10/27/06 Analysis Date...: 10/27/06  
 Prep Batch #....: 6302043 Analysis Time...: 21:01  
 Dilution Factor: 1  
 \* Moisture.....: 29 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Bromodichloromethane	ND	7.0	ug/kg	0.47
Bromoform	ND	7.0	ug/kg	0.34
Carbon tetrachloride	ND	7.0	ug/kg	1.3
Chlorobenzene	ND	7.0	ug/kg	0.17
Dibromochloromethane	ND	7.0	ug/kg	0.40
Chloroethane	ND	14	ug/kg	0.49
2-Chloroethyl vinyl ether	ND	28	ug/kg	1.2
Chloroform	ND	7.0	ug/kg	0.20
Chloromethane	ND	14	ug/kg	0.62
1,2-Dichlorobenzene	ND	7.0	ug/kg	0.21
1,3-Dichlorobenzene	ND	7.0	ug/kg	0.18
1,4-Dichlorobenzene	ND	7.0	ug/kg	0.15
1,1-Dichloroethane	ND	7.0	ug/kg	1.3
1,2-Dichloroethane	ND	7.0	ug/kg	0.61
cis-1,2-Dichloroethene	1900 E	7.0	ug/kg	0.60
trans-1,2-Dichloroethene	2.7 J	7.0	ug/kg	0.31
1,1-Dichloroethene	2.6 J	7.0	ug/kg	0.77
1,2-Dichloropropane	ND	7.0	ug/kg	0.52
1,3-Dichloropropane	ND	7.0	ug/kg	0.25
trans-1,3-Dichloropropene	ND	7.0	ug/kg	0.28
Methylene chloride	ND	7.0	ug/kg	3.5
1,1,2,2-Tetrachloroethane	ND	7.0	ug/kg	0.20
Tetrachloroethene	ND	7.0	ug/kg	0.38
1,1,1-Trichloroethane	ND	7.0	ug/kg	0.20
1,1,2-Trichloroethane	ND	7.0	ug/kg	0.40
Trichloroethene	2.1 J	7.0	ug/kg	0.50
Trichlorofluoromethane	ND	7.0	ug/kg	0.71
Vinyl chloride	62	7.0	ug/kg	0.33

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	95	(59 - 150)
Dibromofluoromethane	83	(26 - 150)
1,2-Dichloroethane-d4	74	(65 - 146)
4-Bromofluorobenzene	86	(39 - 150)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

E Estimated result. Result concentration exceeds the calibration range.

J Estimated result. Result is less than RL.

## CH2M Hill Inc

Client Sample ID: MO-MP3-07

## General Chemistry

Lot-Sample #....: F6J270118-009 Work Order #....: JHDTM Matrix.....: SOLID  
Date Sampled....: 10/26/06 16:10 Date Received...: 10/27/06  
% Moisture.....: 29

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION-</u>	<u>PREP</u>
			%		<u>ANALYSIS DATE</u>	<u>BATCH #</u>
Percent Moisture	28.7	0.10	%	MCAWW 160.3 MOD	10/31-11/01/06	6304054
		Dilution Factor: 1		Analysis Time...: 00:00		MDL.....:

## CH2M Hill Inc

Client Sample ID: MO-MP3-12

## GC/MS Volatiles

Lot-Sample #....: F6J270118-010 Work Order #....: JHDTN1AD Matrix.....: SOLID  
 Date Sampled....: 10/26/06 16:20 Date Received...: 10/27/06  
 Prep Date.....: 10/27/06 Analysis Date...: 10/27/06  
 Prep Batch #....: 6302043 Analysis Time...: 21:25  
 Dilution Factor: 1  
 \* Moisture.....: 2.7 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Bromodichloromethane	ND	5.1	ug/kg	0.34
Bromoform	ND	5.1	ug/kg	0.25
Carbon tetrachloride	ND	5.1	ug/kg	0.93
Chlorobenzene	ND	5.1	ug/kg	0.13
Dibromochloromethane	ND	5.1	ug/kg	0.30
Chloroethane	ND	10	ug/kg	0.36
2-Chloroethyl vinyl ether	ND	21	ug/kg	0.84
Chloroform	ND	5.1	ug/kg	0.15
Chloromethane	ND	10	ug/kg	0.46
1,2-Dichlorobenzene	ND	5.1	ug/kg	0.15
1,3-Dichlorobenzene	ND	5.1	ug/kg	0.13
1,4-Dichlorobenzene	ND	5.1	ug/kg	0.11
1,1-Dichloroethane	ND	5.1	ug/kg	0.98
1,2-Dichloroethane	ND	5.1	ug/kg	0.45
cis-1,2-Dichloroethene	120	5.1	ug/kg	0.44
trans-1,2-Dichloroethene	ND	5.1	ug/kg	0.23
1,1-Dichloroethene	0.63 J	5.1	ug/kg	0.56
1,2-Dichloropropane	ND	5.1	ug/kg	0.38
1,3-Dichloropropane	ND	5.1	ug/kg	0.18
trans-1,3-Dichloropropene	ND	5.1	ug/kg	0.21
Methylene chloride	ND	5.1	ug/kg	2.6
1,1,2,2-Tetrachloroethane	ND	5.1	ug/kg	0.14
Tetrachloroethene	ND	5.1	ug/kg	0.28
1,1,1-Trichloroethane	ND	5.1	ug/kg	0.15
1,1,2-Trichloroethane	ND	5.1	ug/kg	0.29
Trichloroethene	350 E	5.1	ug/kg	0.37
Trichlorofluoromethane	ND	5.1	ug/kg	0.52
Vinyl chloride	ND	5.1	ug/kg	0.24

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	70	(59 - 150)
Dibromofluoromethane	65	(26 - 150)
1,2-Dichloroethane-d4	59 *	(65 - 146)
4-Bromofluorobenzene	61	(39 - 150)

NOTE(S) :

\* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

E Estimated result. Result concentration exceeds the calibration range.

CH2M Hill Inc

Client Sample ID: MO-MP3-12

## GC/MS Volatiles

Lot-Sample #....: F6J270118-010 Work Order #....: JHDTN2AD      Matrix.....: SOLID  
 Date Sampled....: 10/26/06 16:20 Date Received...: 10/27/06  
 Prep Date.....: 10/31/06 Analysis Date...: 10/31/06  
 Prep Batch #....: 6305192 Analysis Time...: 19:20  
 Dilution Factor: 1  
 % Moisture.....: 2.7 Method.....: SW846 8260B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Trichloroethene	560	5.1	ug/kg	38
cis-1,2-Dichloroethene	120 J	260	ug/kg	67

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	94	(57 - 139)
Dibromofluoromethane	76	(30 - 150)
1,2-Dichloroethane-d4	71	(51 - 141)
4-Bromofluorobenzene	96	(30 - 150)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

CH2M Hill Inc

Client Sample ID: MO-MP3-12

**General Chemistry**

Lot-Sample #....: F6J270118-010   Work Order #....: JHDTN      Matrix.....: SOLID  
Date Sampled....: 10/26/06 16:20   Date Received...: 10/27/06  
% Moisture.....: 2.7

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-	PREP
					ANALYSIS DATE	BATCH #
Percent Moisture	2.7	0.10	%	MCAWW 160.3 MOD	10/31-11/01/06	6304054
		Dilution Factor:	1	Analysis Time...: 00:00		MDL.....:

## METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #...: F6J270118  
 MB Lot-Sample #: F6J290000-043  
 Analysis Date...: 10/27/06  
 Dilution Factor: 1

Work Order #...: JHJV31AA  
 Prep Date.....: 10/27/06  
 Prep Batch #...: 6302043

Matrix.....: SOLID  
 Analysis Time..: 13:16

<u>PARAMETER</u>	<u>RESULT</u>	REPORTING		
		<u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Bromoform	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
2-Chloroethyl vinyl ether	ND	20	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
Chloromethane	ND	10	ug/kg	SW846 8260B
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260B
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260B
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Methylene chloride	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
Trichlorofluoromethane	ND	5.0	ug/kg	SW846 8260B
Vinyl chloride	ND	5.0	ug/kg	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	RECOVERY	
		<u>LIMITS</u>	
Toluene-d8	107	(59 - 150)	
Dibromofluoromethane	100	(26 - 150)	
1,2-Dichloroethane-d4	96	(65 - 146)	
4-Bromofluorobenzene	105	(39 - 150)	

## NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

## METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118  
 MB Lot-Sample #: F6J300000-509  
 Analysis Date...: 10/30/06  
 Dilution Factor: 1

Work Order #....: JHJ4D1AA

Matrix.....: WATER

Prep Date.....: 10/30/06  
 Prep Batch #....: 6303509

Analysis Time...: 16:26

<u>PARAMETER</u>	<u>REPORTING</u>			
	<u>RESULT</u>	<u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Bromodichloromethane	ND	5.0	ug/L	SW846 8260B
Bromoform	ND	5.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/L	SW846 8260B
Chlorobenzene	ND	5.0	ug/L	SW846 8260B
Dibromochloromethane	ND	5.0	ug/L	SW846 8260B
Chloroethane	ND	10	ug/L	SW846 8260B
2-Chloroethyl vinyl ether	ND	20	ug/L	SW846 8260B
Chloroform	ND	5.0	ug/L	SW846 8260B
Chloromethane	ND	10	ug/L	SW846 8260B
1,2-Dichlorobenzene	ND	5.0	ug/L	SW846 8260B
1,3-Dichlorobenzene	ND	5.0	ug/L	SW846 8260B
1,4-Dichlorobenzene	0.19 J	5.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	5.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	5.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/L	SW846 8260B
1,3-Dichloropropane	ND	5.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8260B
Methylene chloride	ND	5.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	SW846 8260B
Tetrachloroethene	ND	5.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/L	SW846 8260B
Trichloroethene	ND	5.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	5.0	ug/L	SW846 8260B
Vinyl chloride	ND	5.0	ug/L	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>	<u>LIMITS</u>
Toluene-d8	101	(68 - 133)	
Dibromofluoromethane	88	(74 - 129)	
1,2-Dichloroethane-d4	84	(69 - 132)	
4-Bromofluorobenzene	102	(64 - 130)	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

## METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118  
 MB Lot-Sample #: F6K010000-190  
 Analysis Date...: 10/31/06  
 Dilution Factor: 1

Work Order #....: JHNE81AA  
 Prep Date.....: 10/31/06  
 Prep Batch #....: 6305190

Matrix.....: SOLID  
 Analysis Time..: 14:41

<u>PARAMETER</u>	<u>RESULT</u>	REPORTING		
		<u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
Bromoform	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
2-Chloroethyl vinyl ether	ND	20	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
Chloromethane	ND	10	ug/kg	SW846 8260B
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260B
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260B
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Trichlorofluoromethane	ND	5.0	ug/kg	SW846 8260B
Methylene chloride	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
Vinyl chloride	ND	5.0	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	ND	5.0	ug/kg	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	RECOVERY	
		<u>LIMITS</u>	
Toluene-d8	111	(59 - 150)	
Dibromofluoromethane	95	(26 - 150)	
1,2-Dichloroethane-d4	99	(65 - 146)	
4-Bromofluorobenzene	112	(39 - 150)	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

## METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #...: F6J270118  
 MB Lot-Sample #: F6K010000-192  
 Analysis Date...: 10/31/06  
 Dilution Factor: 1

Work Order #...: JHNFC1AA  
 Prep Date.....: 10/31/06  
 Prep Batch #...: 6305192

Matrix.....: SOLID  
 Analysis Time..: 14:16

<u>PARAMETER</u>	<u>REPORTING</u>			
	<u>RESULT</u>	<u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Bromodichloromethane	ND	250	ug/kg	SW846 8260B
Bromoform	ND	250	ug/kg	SW846 8260B
Carbon tetrachloride	ND	250	ug/kg	SW846 8260B
Chlorobenzene	ND	250	ug/kg	SW846 8260B
Dibromochloromethane	ND	250	ug/kg	SW846 8260B
Chloroethane	ND	500	ug/kg	SW846 8260B
2-Chloroethyl vinyl ether	ND	1000	ug/kg	SW846 8260B
Chloroform	ND	250	ug/kg	SW846 8260B
Chloromethane	ND	500	ug/kg	SW846 8260B
1,2-Dichlorobenzene	ND	250	ug/kg	SW846 8260B
1,3-Dichlorobenzene	ND	250	ug/kg	SW846 8260B
1,4-Dichlorobenzene	ND	250	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	250	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	250	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	250	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	250	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	250	ug/kg	SW846 8260B
1,3-Dichloropropane	ND	250	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	250	ug/kg	SW846 8260B
Trichlorofluoromethane	ND	250	ug/kg	SW846 8260B
Methylene chloride	ND	250	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	250	ug/kg	SW846 8260B
Tetrachloroethene	ND	250	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	250	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	250	ug/kg	SW846 8260B
Trichloroethene	ND	250	ug/kg	SW846 8260B
Vinyl chloride	ND	250	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	ND	250	ug/kg	SW846 8260B
<u>SURROGATE</u>	<u>PERCENT</u>		<u>RECOVERY</u>	
	<u>RECOVERY</u>		<u>LIMITS</u>	
Toluene-d8	118		(57 - 139)	
Dibromofluoromethane	95		(30 - 150)	
1,2-Dichloroethane-d4	97		(51 - 141)	
4-Bromofluorobenzene	121		(30 - 150)	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHJV31AC      Matrix.....: SOLID  
 LCS Lot-Sample#: F6J290000-043  
 Prep Date.....: 10/27/06      Analysis Date...: 10/27/06  
 Prep Batch #....: 6302043      Analysis Time...: 12:27  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
cis-1,3-Dichloropropene	112	(68 - 129)	SW846 8260B
Bromodichloromethane	103	(75 - 122)	SW846 8260B
Bromomethane	85	(62 - 138)	SW846 8260B
Bromoform	113	(74 - 131)	SW846 8260B
Acetone	122	(40 - 144)	SW846 8260B
Carbon disulfide	102	(69 - 146)	SW846 8260B
Carbon tetrachloride	93	(65 - 135)	SW846 8260B
2-Butanone	121	(67 - 130)	SW846 8260B
1,2-Dichloroethene (total)	104	(80 - 127)	SW846 8260B
Chlorobenzene	100	(73 - 119)	SW846 8260B
Dibromochloromethane	107	(69 - 129)	SW846 8260B
Benzene	103	(78 - 118)	SW846 8260B
Chloroethane	81	(75 - 132)	SW846 8260B
2-Chloroethyl vinyl ether	95	(71 - 131)	SW846 8260B
Toluene	107	(75 - 122)	SW846 8260B
m-Xylene & p-Xylene	106	(80 - 119)	SW846 8260B
o-Xylene	112	(77 - 122)	SW846 8260B
Chloroform	97	(79 - 120)	SW846 8260B
2-Hexanone	106	(63 - 136)	SW846 8260B
4-Methyl-2-pentanone	122	(69 - 133)	SW846 8260B
Chloromethane	59 a	(71 - 131)	SW846 8260B
1,2-Dichlorobenzene	101	(72 - 119)	SW846 8260B
1,3-Dichlorobenzene	101	(70 - 123)	SW846 8260B
Ethylbenzene	100	(79 - 115)	SW846 8260B
Styrene	109	(83 - 123)	SW846 8260B
1,4-Dichlorobenzene	94	(72 - 116)	SW846 8260B
Bromobenzene	105	(58 - 131)	SW846 8260B
Bromochloromethane	106	(74 - 122)	SW846 8260B
1,1-Dichloroethane	98	(82 - 121)	SW846 8260B
n-Butylbenzene	107	(74 - 128)	SW846 8260B
sec-Butylbenzene	116	(59 - 139)	SW846 8260B
tert-Butylbenzene	114	(54 - 139)	SW846 8260B
1,2-Dichloroethane	93	(72 - 117)	SW846 8260B

(Continued on next page)

## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHJV31AC      Matrix.....: SOLID  
 LCS Lot-Sample#: F6J290000-043

<u>PARAMETER</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>METHOD</u>
	<u>RECOVERY</u>	<u>LIMITS</u>	
Allyl chloride	94	(74 - 135)	SW846 8260B
2-Chlorotoluene	105	(57 - 135)	SW846 8260B
4-Chlorotoluene	101	(56 - 132)	SW846 8260B
Cyclohexanone	89	(60 - 150)	SW846 8260B
cis-1,2-Dichloroethene	108	(80 - 124)	SW846 8260B
1,2-Dibromo-3-chloropropane (DBCP)	114	(55 - 133)	SW846 8260B
1,2-Dibromoethane (EDB)	105	(72 - 120)	SW846 8260B
trans-1,4-Dichloro-2-butene	122	(55 - 148)	SW846 8260B
trans-1,2-Dichloroethene	99	(78 - 132)	SW846 8260B
Dichlorodifluoromethane (Freon 12)	29 a	(40 - 150)	SW846 8260B
1,1-Dichloroethene	95	(73 - 132)	SW846 8260B
2,2-Dichloropropane	87	(76 - 130)	SW846 8260B
1,1-Dichloropropene	105	(76 - 123)	SW846 8260B
Ethyl methacrylate	138 a	(73 - 128)	SW846 8260B
1,2-Dichloropropane	109	(77 - 115)	SW846 8260B
Freon 113	90	(67 - 145)	SW846 8260B
Hexachlorobutadiene	89	(40 - 149)	SW846 8260B
n-Hexane	99	(67 - 138)	SW846 8260B
1,3-Dichloropropane	108	(74 - 119)	SW846 8260B
Isopropylbenzene	111	(62 - 137)	SW846 8260B
4-Isopropyltoluene	114	(59 - 143)	SW846 8260B
Methyl methacrylate	130 a	(67 - 129)	SW846 8260B
trans-1,3-Dichloropropene	107	(76 - 128)	SW846 8260B
Methyl tert-butyl ether (MTBE)	98	(82 - 119)	SW846 8260B
Naphthalene	104	(68 - 127)	SW846 8260B
2-Nitropropane	92	(40 - 147)	SW846 8260B
Methylene chloride	115	(40 - 149)	SW846 8260B
n-Propylbenzene	117	(60 - 139)	SW846 8260B
1,1,1,2-Tetrachloroethane	96	(72 - 118)	SW846 8260B
Tetrahydrofuran	131 a	(66 - 130)	SW846 8260B
1,2,3-Trichlorobenzene	92	(64 - 132)	SW846 8260B
1,1,2,2-Tetrachloroethane	108	(71 - 119)	SW846 8260B
1,2,4-Trichlorobenzene	91	(62 - 135)	SW846 8260B

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## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHJV31AC      Matrix.....: SOLID  
 LCS Lot-Sample#: F6J290000-043

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
1,3,5-Trimethylbenzene	114	(68 - 137)	SW846 8260B
Tetrachloroethene	111	(61 - 135)	SW846 8260B
Ethyl ether	95	(74 - 139)	SW846 8260B
1-Butanol	126	(67 - 130)	SW846 8260B
Acetonitrile	124	(69 - 128)	SW846 8260B
1,1,1-Trichloroethane	93	(71 - 127)	SW846 8260B
Ethyl acetate	120	(75 - 129)	SW846 8260B
Iodomethane	95	(55 - 147)	SW846 8260B
Vinyl acetate	112	(80 - 150)	SW846 8260B
1,1,2-Trichloroethane	107	(74 - 115)	SW846 8260B
Acrolein	201 a	(40 - 150)	SW846 8260B
Acrylonitrile	126	(43 - 150)	SW846 8260B
Cyclohexane	109	(85 - 120)	SW846 8260B
Trichloroethene	102	(61 - 124)	SW846 8260B
Isobutanol	129	(63 - 136)	SW846 8260B
Methacrylonitrile	117	(80 - 128)	SW846 8260B
Methylcyclohexane	103	(72 - 116)	SW846 8260B
Trichlorofluoromethane	79	(71 - 136)	SW846 8260B
Propionitrile	128 a	(84 - 119)	SW846 8260B
1,4-Dioxane	116	(58 - 120)	SW846 8260B
Pentachloroethane	90	(58 - 137)	SW846 8260B
Methyl acetate	125 a	(77 - 115)	SW846 8260B
Vinyl chloride	69	(67 - 134)	SW846 8260B
2-Chloro-1,3-butadiene	110	(88 - 125)	SW846 8260B
1,2-Dichloro-	66	(40 - 150)	SW846 8260B
1,1,2,2-tetrafluoroethane			

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	111	(76 - 126)
Dibromofluoromethane	99	(78 - 126)
1,2-Dichloroethane-d4	96	(76 - 121)
4-Bromofluorobenzene	112	(64 - 124)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHJ4D1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: F6J300000-509      JHJ4D1AD-LCSD  
 Prep Date.....: 10/30/06      Analysis Date...: 10/30/06  
 Prep Batch #....: 6303509      Analysis Time..: 15:13  
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>RPD</u>	<u>LIMITS</u>	<u>METHOD</u>
	<u>RECOVERY</u>	<u>LIMITS</u>	<u>RPD</u>	<u>LIMITS</u>	
cis-1,3-Dichloropropene	93	(78 - 122)			SW846 8260B
	92	(78 - 122)	0.71	(0-20)	SW846 8260B
Bromodichloromethane	83	(76 - 124)			SW846 8260B
	84	(76 - 124)	0.45	(0-20)	SW846 8260B
Bromomethane	72	(43 - 152)			SW846 8260B
	75	(43 - 152)	4.1	(0-20)	SW846 8260B
Bromoform	104	(81 - 126)			SW846 8260B
	101	(81 - 126)	2.6	(0-20)	SW846 8260B
Acetone	99	(40 - 150)			SW846 8260B
	82	(40 - 150)	18	(0-20)	SW846 8260B
Carbon disulfide	94	(71 - 137)			SW846 8260B
	92	(71 - 137)	2.2	(0-20)	SW846 8260B
Carbon tetrachloride	80	(65 - 134)			SW846 8260B
	77	(65 - 134)	3.8	(0-20)	SW846 8260B
2-Butanone	99	(61 - 133)			SW846 8260B
	88	(61 - 133)	11	(0-20)	SW846 8260B
1,2-Dichloroethene (total)	91	(76 - 122)			SW846 8260B
	91	(76 - 122)	0.57	(0-20)	SW846 8260B
Chlorobenzene	90	(75 - 121)			SW846 8260B
	91	(75 - 121)	1.2	(0-20)	SW846 8260B
Dibromochloromethane	95	(73 - 130)			SW846 8260B
	95	(73 - 130)	0.31	(0-20)	SW846 8260B
Benzene	89	(80 - 116)			SW846 8260B
	88	(80 - 116)	0.56	(0-20)	SW846 8260B
Chloroethane	68	(62 - 139)			SW846 8260B
	65	(62 - 139)	3.4	(0-20)	SW846 8260B
2-Chloroethyl vinyl ether	61	(40 - 150)			SW846 8260B
	64	(40 - 150)	4.9	(0-20)	SW846 8260B
Toluene	98	(80 - 122)			SW846 8260B
	97	(80 - 122)	0.36	(0-20)	SW846 8260B
m-Xylene & p-Xylene	98	(78 - 124)			SW846 8260B
	99	(78 - 124)	0.50	(0-20)	SW846 8260B
o-Xylene	102	(78 - 123)			SW846 8260B
	103	(78 - 123)	1.5	(0-20)	SW846 8260B
Chloroform	80	(75 - 120)			SW846 8260B
	80	(75 - 120)	0.10	(0-20)	SW846 8260B
2-Hexanone	94	(64 - 135)			SW846 8260B
	88	(64 - 135)	6.8	(0-20)	SW846 8260B

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## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHJ4D1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: F6J300000-509      JHJ4D1AD-LCSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	LIMITS	METHOD
Chloromethane	65 a	(68 - 136)			SW846 8260B
	64 a	(68 - 136)	1.6	(0-20)	SW846 8260B
4-Methyl-2-pentanone	107	(66 - 139)			SW846 8260B
	100	(66 - 139)	6.8	(0-20)	SW846 8260B
1,2-Dichlorobenzene	95	(71 - 127)			SW846 8260B
	93	(71 - 127)	1.5	(0-20)	SW846 8260B
1,3-Dichlorobenzene	95	(72 - 126)			SW846 8260B
	94	(72 - 126)	1.3	(0-20)	SW846 8260B
Ethylbenzene	90	(81 - 114)			SW846 8260B
	91	(81 - 114)	1.3	(0-20)	SW846 8260B
Styrene	98	(82 - 124)			SW846 8260B
	99	(82 - 124)	0.95	(0-20)	SW846 8260B
1,4-Dichlorobenzene	88	(66 - 126)			SW846 8260B
	89	(66 - 126)	0.88	(0-20)	SW846 8260B
Bromobenzene	97	(73 - 121)			SW846 8260B
	97	(73 - 121)	0.20	(0-20)	SW846 8260B
Bromoform	92	(73 - 123)			SW846 8260B
	92	(73 - 123)	0.97	(0-20)	SW846 8260B
1,1-Dichloroethane	83	(77 - 119)			SW846 8260B
	82	(77 - 119)	0.58	(0-20)	SW846 8260B
n-Butylbenzene	100	(75 - 129)			SW846 8260B
	98	(75 - 129)	2.1	(0-20)	SW846 8260B
sec-Butylbenzene	110	(71 - 134)			SW846 8260B
	107	(71 - 134)	2.7	(0-20)	SW846 8260B
tert-Butylbenzene	108	(68 - 130)			SW846 8260B
	105	(68 - 130)	3.2	(0-20)	SW846 8260B
1,2-Dichloroethane	75	(67 - 123)			SW846 8260B
	73	(67 - 123)	3.3	(0-20)	SW846 8260B
Allyl chloride	74	(66 - 129)			SW846 8260B
	76	(66 - 129)	1.9	(0-20)	SW846 8260B
2-Chlorotoluene	88	(64 - 133)			SW846 8260B
	88	(64 - 133)	0.43	(0-20)	SW846 8260B
4-Chlorotoluene	86	(59 - 136)			SW846 8260B
	85	(59 - 136)	0.96	(0-20)	SW846 8260B
Cyclohexanone	91	(52 - 150)			SW846 8260B
	78	(52 - 150)	15	(0-20)	SW846 8260B
cis-1,2-Dichloroethene	94	(77 - 121)			SW846 8260B
	94	(77 - 121)	0.020	(0-20)	SW846 8260B
1,2-Dibromo-3-chloropropane (DBCP)	108	(61 - 132)			SW846 8260B
	102	(61 - 132)	5.9	(0-20)	SW846 8260B

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## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #...: F6J270118      Work Order #...: JHJ4D1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: F6J300000-509      JHJ4D1AD-LCSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,2-Dibromoethane (EDB)	95	(75 - 119)			SW846 8260B
	93	(75 - 119)	2.2	(0-20)	SW846 8260B
trans-1,4-Dichloro-2-butene	111	(62 - 142)			SW846 8260B
	106	(62 - 142)	4.1	(0-20)	SW846 8260B
trans-1,2-Dichloroethylene	88	(72 - 125)			SW846 8260B
	87	(72 - 125)	1.2	(0-20)	SW846 8260B
Dichlorodifluoromethane (Freon 12)	49	(46 - 147)			SW846 8260B
	48	(46 - 147)	4.0	(0-20)	SW846 8260B
1,1-Dichloroethylene	87	(71 - 123)			SW846 8260B
	84	(71 - 123)	2.7	(0-20)	SW846 8260B
2,2-Dichloropropane	78	(67 - 130)			SW846 8260B
	78	(67 - 130)	0.0	(0-20)	SW846 8260B
1,1-Dichloropropene	88	(78 - 117)			SW846 8260B
	86	(78 - 117)	2.8	(0-20)	SW846 8260B
1,2-Dichloropropane	91	(73 - 120)			SW846 8260B
	91	(73 - 120)	0.33	(0-20)	SW846 8260B
Ethyl methacrylate	122	(73 - 133)			SW846 8260B
	122	(73 - 133)	0.41	(0-20)	SW846 8260B
Freon 113	83	(63 - 135)			SW846 8260B
	79	(63 - 135)	5.1	(0-20)	SW846 8260B
Hexachlorobutadiene	83	(40 - 149)			SW846 8260B
	84	(40 - 149)	0.62	(0-20)	SW846 8260B
n-Hexane	89	(74 - 122)			SW846 8260B
	86	(74 - 122)	3.2	(0-20)	SW846 8260B
1,3-Dichloropropane	94	(78 - 115)			SW846 8260B
	94	(78 - 115)	0.82	(0-20)	SW846 8260B
Isopropylbenzene	103	(72 - 130)			SW846 8260B
	104	(72 - 130)	1.8	(0-20)	SW846 8260B
4-Isopropyltoluene	108	(76 - 131)			SW846 8260B
	106	(76 - 131)	2.1	(0-20)	SW846 8260B
Methyl methacrylate	106	(68 - 131)			SW846 8260B
	101	(68 - 131)	4.8	(0-20)	SW846 8260B
trans-1,3-Dichloropropene	94	(76 - 126)			SW846 8260B
	94	(76 - 126)	0.34	(0-20)	SW846 8260B
Methyl tert-butyl ether (MTBE)	85	(77 - 122)			SW846 8260B
	83	(77 - 122)	2.6	(0-20)	SW846 8260B

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## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #...: F6J270118      Work Order #...: JHJ4D1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: F6J300000-509      JHJ4D1AD-LCSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Naphthalene	95	(60 - 141)			SW846 8260B
	93	(60 - 141)	2.2	(0-20)	SW846 8260B
2-Nitropropane	80	(40 - 150)			SW846 8260B
	75	(40 - 150)	5.4	(0-20)	SW846 8260B
Methylene chloride	98	(38 - 143)			SW846 8260B
	96	(38 - 143)	1.4	(0-20)	SW846 8260B
n-Propylbenzene	108	(69 - 136)			SW846 8260B
	105	(69 - 136)	3.1	(0-20)	SW846 8260B
1,1,1,2-Tetrachloroethane	88	(75 - 118)			SW846 8260B
	89	(75 - 118)	2.0	(0-20)	SW846 8260B
Tetrahydrofuran	114	(70 - 133)			SW846 8260B
	105	(70 - 133)	7.9	(0-20)	SW846 8260B
1,2,3-Trichlorobenzene	84	(55 - 141)			SW846 8260B
	84	(55 - 141)	0.020	(0-20)	SW846 8260B
1,1,2,2-Tetrachloroethane	102	(73 - 116)			SW846 8260B
	96	(73 - 116)	5.8	(0-20)	SW846 8260B
1,2,4-Trichloro-benzene	84	(56 - 143)			SW846 8260B
	86	(56 - 143)	1.9	(0-20)	SW846 8260B
1,3,5-Trimethylbenzene	107	(75 - 129)			SW846 8260B
	105	(75 - 129)	1.4	(0-20)	SW846 8260B
Tetrachloroethene	96	(71 - 126)			SW846 8260B
	100	(71 - 126)	5.1	(0-20)	SW846 8260B
Ethyl ether	76	(70 - 136)			SW846 8260B
	77	(70 - 136)	0.68	(0-20)	SW846 8260B
1-Butanol	117	(39 - 150)			SW846 8260B
	95 p	(39 - 150)	21	(0-20)	SW846 8260B
Acetonitrile	102	(47 - 143)			SW846 8260B
	89	(47 - 143)	14	(0-20)	SW846 8260B
1,1,1-Trichloroethane	80	(69 - 128)			SW846 8260B
	79	(69 - 128)	2.2	(0-20)	SW846 8260B
Ethyl acetate	102	(69 - 132)			SW846 8260B
	92	(69 - 132)	10	(0-20)	SW846 8260B
Iodomethane	87	(78 - 117)			SW846 8260B
	86	(78 - 117)	0.67	(0-20)	SW846 8260B
Vinyl acetate	93	(70 - 150)			SW846 8260B
	88	(70 - 150)	4.9	(0-20)	SW846 8260B
1,1,2-Trichloroethane	94	(75 - 113)			SW846 8260B
	96	(75 - 113)	2.2	(0-20)	SW846 8260B
Acrolein	168 a	(40 - 150)			SW846 8260B
	159 a	(40 - 150)	5.5	(0-20)	SW846 8260B

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## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #...: F6J270118      Work Order #...: JHJ4D1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: F6J300000-509      JHJ4D1AD-LCSD

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>LIMITS</u>	<u>METHOD</u>
Acrylonitrile	105	(40 - 150)			SW846 8260B
	101	(40 - 150)	3.1	(0-20)	SW846 8260B
Cyclohexane	98	(87 - 116)			SW846 8260B
	95	(87 - 116)	2.7	(0-20)	SW846 8260B
Trichloroethene	86	(70 - 120)			SW846 8260B
	87	(70 - 120)	0.060	(0-20)	SW846 8260B
Isobutanol	108	(46 - 153)			SW846 8260B
	97	(46 - 153)	11	(0-20)	SW846 8260B
Methacrylonitrile	95	(75 - 133)			SW846 8260B
	90	(75 - 133)	5.7	(0-20)	SW846 8260B
Methylcyclohexane	88	(80 - 115)			SW846 8260B
	86	(80 - 115)	2.0	(0-20)	SW846 8260B
Trichlorofluoromethane	68	(57 - 144)			SW846 8260B
	66	(57 - 144)	2.4	(0-20)	SW846 8260B
Propionitrile	110	(66 - 133)			SW846 8260B
	102	(66 - 133)	8.3	(0-20)	SW846 8260B
1,4-Dioxane	121	(38 - 150)			SW846 8260B
	104	(38 - 150)	15	(0-20)	SW846 8260B
Pentachloroethane	99	(52 - 140)			SW846 8260B
	92	(52 - 140)	6.5	(0-20)	SW846 8260B
Methyl acetate	114	(66 - 120)			SW846 8260B
	102	(66 - 120)	11	(0-20)	SW846 8260B
Vinyl chloride	69	(67 - 137)			SW846 8260B
	67	(67 - 137)	2.4	(0-20)	SW846 8260B
2-Chloro-1,3-butadiene	90	(82 - 122)			SW846 8260B
	88	(82 - 122)	2.1	(0-20)	SW846 8260B
1,2-Dichloro- 1,1,2,2-tetrafluoroethane	81	(55 - 135)			SW846 8260B
	78	(55 - 135)	4.2	(0-20)	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	105	(81 - 124)
	111	(81 - 124)
Dibromofluoromethane	88	(78 - 124)
	92	(78 - 124)
1,2-Dichloroethane-d4	81	(71 - 125)
	81	(71 - 125)
4-Bromofluorobenzene	105	(71 - 124)
	107	(71 - 124)

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F6J270118      Work Order #...: JHJ4D1AC-LCS      Matrix.....: WATER  
LCS Lot-Sample#: F6J300000-509                                    JHJ4D1AD-LCSD

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHNE81AC      Matrix.....: SOLID  
 LCS Lot-Sample#: F6K010000-190  
 Prep Date.....: 10/31/06      Analysis Date...: 10/31/06  
 Prep Batch #....: 6305190      Analysis Time..: 13:03  
 Dilution Factor: 1

PARAMETER	PERCENT	RECOVERY	METHOD
	RECOVERY	LIMITS	
Chloroethane	103	(75 - 132)	SW846 8260B
1,1-Dichloroethene	109	(73 - 132)	SW846 8260B
Methylene chloride	117	(40 - 149)	SW846 8260B
1,1-Dichloroethane	108	(82 - 121)	SW846 8260B
Dibromochloromethane	116	(69 - 129)	SW846 8260B
Chloromethane	113	(71 - 131)	SW846 8260B
Vinyl chloride	102	(67 - 134)	SW846 8260B
Chloroform	106	(79 - 120)	SW846 8260B
1,1,1-Trichloroethane	105	(71 - 127)	SW846 8260B
Carbon tetrachloride	105	(65 - 135)	SW846 8260B
1,2-Dichloroethane	105	(72 - 117)	SW846 8260B
Trichloroethene	108	(61 - 124)	SW846 8260B
1,2-Dichloropropane	112	(77 - 115)	SW846 8260B
Bromodichloromethane	110	(75 - 122)	SW846 8260B
1,1,2-Trichloroethane	117 a	(74 - 115)	SW846 8260B
trans-1,3-Dichloropropene	120	(76 - 128)	SW846 8260B
1,3-Dichlorobenzene	109	(70 - 123)	SW846 8260B
1,4-Dichlorobenzene	103	(72 - 116)	SW846 8260B
Chlorobenzene	110	(73 - 119)	SW846 8260B
Bromoform	119	(74 - 131)	SW846 8260B
1,1,2,2-Tetrachloroethane	115	(71 - 119)	SW846 8260B
Tetrachloroethene	156 a	(61 - 135)	SW846 8260B
1,2-Dichlorobenzene	112	(72 - 119)	SW846 8260B
trans-1,2-Dichloroethene	106	(78 - 132)	SW846 8260B
1,3-Dichloropropane	118	(74 - 119)	SW846 8260B
Trichlorofluoromethane	103	(71 - 136)	SW846 8260B
2-Chloroethyl vinyl ether	85	(71 - 131)	SW846 8260B
cis-1,3-Dichloropropene	116	(68 - 129)	SW846 8260B
Bromomethane	131	(62 - 138)	SW846 8260B
Acetone	119	(40 - 144)	SW846 8260B
Carbon disulfide	121	(69 - 146)	SW846 8260B
2-Butanone	114	(67 - 130)	SW846 8260B
1,2-Dichloroethene	109	(80 - 127)	SW846 8260B
(total)			

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## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHNE81AC      Matrix.....: SOLID  
 LCS Lot-Sample#: F6K010000-190

<u>PARAMETER</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>METHOD</u>
	<u>RECOVERY</u>	<u>LIMITS</u>	
Benzene	109	(78 - 118)	SW846 8260B
Toluene	119	(75 - 122)	SW846 8260B
m-Xylene & p-Xylene	118	(80 - 119)	SW846 8260B
o-Xylene	122	(77 - 122)	SW846 8260B
2-Hexanone	111	(63 - 136)	SW846 8260B
4-Methyl-2-pentanone	124	(69 - 133)	SW846 8260B
Ethylbenzene	113	(79 - 115)	SW846 8260B
Styrene	117	(83 - 123)	SW846 8260B
Bromobenzene	116	(58 - 131)	SW846 8260B
Bromo-chloromethane	105	(74 - 122)	SW846 8260B
n-Butylbenzene	119	(74 - 128)	SW846 8260B
sec-Butylbenzene	135	(59 - 139)	SW846 8260B
tert-Butylbenzene	126	(54 - 139)	SW846 8260B
Allyl chloride	112	(74 - 135)	SW846 8260B
2-Chlorotoluene	110	(57 - 135)	SW846 8260B
4-Chlorotoluene	103	(56 - 132)	SW846 8260B
Cyclohexanone	104	(60 - 150)	SW846 8260B
1,2-Dibromo-3- chloropropane (DBCP)	119	(55 - 133)	SW846 8260B
1,2-Dibromoethane (EDB)	112	(72 - 120)	SW846 8260B
trans-1,4-Dichloro- 2-butene	140	(55 - 148)	SW846 8260B
Dichlorodifluoromethane (Freon 12)	102	(40 - 150)	SW846 8260B
2,2-Dichloropropane	97	(76 - 130)	SW846 8260B
1,1-Dichloropropene	111	(76 - 123)	SW846 8260B
Ethyl methacrylate	142 a	(73 - 128)	SW846 8260B
Freon 113	100	(67 - 145)	SW846 8260B
Hexachlorobutadiene	102	(40 - 149)	SW846 8260B
n-Hexane	109	(67 - 138)	SW846 8260B
Isopropylbenzene	127	(62 - 137)	SW846 8260B
4-Isopropyltoluene	130	(59 - 143)	SW846 8260B
Methyl methacrylate	119	(67 - 129)	SW846 8260B
Methyl tert-butyl ether (MTBE)	105	(82 - 119)	SW846 8260B
Naphthalene	112	(68 - 127)	SW846 8260B
2-Nitropropane	102	(40 - 147)	SW846 8260B

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## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHNE81AC      Matrix.....: SOLID  
 LCS Lot-Sample#: F6K010000-190

<u>PARAMETER</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>METHOD</u>
	<u>RECOVERY</u>	<u>LIMITS</u>	
n-Propylbenzene	133	(60 - 139)	SW846 8260B
1,1,1,2-Tetrachloroethane	110	(72 - 118)	SW846 8260B
Tetrahydrofuran	123	(66 - 130)	SW846 8260B
1,2,3-Trichlorobenzene	98	(64 - 132)	SW846 8260B
1,2,4-Trichloro- benzene	94	(62 - 135)	SW846 8260B
1,3,5-Trimethylbenzene	133	(68 - 137)	SW846 8260B
Ethyl ether	103	(74 - 139)	SW846 8260B
1-Butanol	123	(67 - 130)	SW846 8260B
Acetonitrile	122	(69 - 128)	SW846 8260B
Ethyl acetate	121	(75 - 129)	SW846 8260B
Iodomethane	106	(55 - 147)	SW846 8260B
Vinyl acetate	130	(80 - 150)	SW846 8260B
Acrolein	113	(40 - 150)	SW846 8260B
Acrylonitrile	122	(43 - 150)	SW846 8260B
Cyclohexane	116	(85 - 120)	SW846 8260B
Isobutanol	124	(63 - 136)	SW846 8260B
Methacrylonitrile	121	(80 - 128)	SW846 8260B
Methylcyclohexane	113	(72 - 116)	SW846 8260B
Propionitrile	126 a	(84 - 119)	SW846 8260B
1,4-Dioxane	132 a	(58 - 120)	SW846 8260B
Pentachloroethane	60	(58 - 137)	SW846 8260B
Methyl acetate	100	(77 - 115)	SW846 8260B
2-Chloro-1,3-butadiene	121	(88 - 125)	SW846 8260B
1,2-Dichloro- 1,1,2,2-tetrafluoroethane	120	(40 - 150)	SW846 8260B
cis-1,2-Dichloroethene	111	(80 - 124)	SW846 8260B
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	
	<u>RECOVERY</u>	<u>LIMITS</u>	
Toluene-d8	122	(76 - 126)	
Dibromofluoromethane	104	(78 - 126)	
1,2-Dichloroethane-d4	104	(76 - 121)	
4-Bromofluorobenzene	119	(64 - 124)	

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHNE81AC      Matrix.....: SOLID  
LCS Lot-Sample#: F6K010000-190

**NOTE (S) :**

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Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

■ Spiked analytic recovery is outside stated control limits.

## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHNFC1AC      Matrix.....: SOLID  
 LCS Lot-Sample#: F6K010000-192  
 Prep Date.....: 10/31/06      Analysis Date...: 10/31/06  
 Prep Batch #....: 6305192      Analysis Time...: 13:27  
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>METHOD</u>
	<u>RECOVERY</u>	<u>LIMITS</u>	
cis-1,3-Dichloropropene	101	(81 - 118)	SW846 8260B
Bromodichloromethane	94	(77 - 122)	SW846 8260B
Bromomethane	84	(40 - 130)	SW846 8260B
Bromoform	112	(74 - 136)	SW846 8260B
Acetone	109	(50 - 138)	SW846 8260B
Carbon disulfide	119	(53 - 150)	SW846 8260B
Carbon tetrachloride	94	(49 - 145)	SW846 8260B
2-Butanone	99	(73 - 122)	SW846 8260B
1,2-Dichloroethene (total)	99	(68 - 123)	SW846 8260B
Chlorobenzene	100	(73 - 127)	SW846 8260B
Dibromochloromethane	103	(71 - 136)	SW846 8260B
Benzene	98	(80 - 115)	SW846 8260B
Chloroethane	52	(40 - 130)	SW846 8260B
Bromochloromethane	95	(74 - 120)	SW846 8260B
Toluene	113	(78 - 126)	SW846 8260B
m-Xylene & p-Xylene	110	(74 - 132)	SW846 8260B
o-Xylene	114	(75 - 127)	SW846 8260B
Chloroform	92	(65 - 124)	SW846 8260B
Chloromethane	98	(60 - 128)	SW846 8260B
2-Hexanone	96	(72 - 123)	SW846 8260B
4-Methyl-2-pentanone	104	(76 - 128)	SW846 8260B
1,2-Dichlorobenzene	104	(65 - 138)	SW846 8260B
1,3-Dichlorobenzene	106	(67 - 136)	SW846 8260B
Ethylbenzene	105	(83 - 115)	SW846 8260B
Xylenes (total)	111	(75 - 130)	SW846 8260B
1,4-Dichlorobenzene	97	(62 - 134)	SW846 8260B
Styrene	106	(81 - 128)	SW846 8260B
1,1-Dichloroethane	97	(68 - 119)	SW846 8260B
1,2-Dichloroethane	88	(60 - 129)	SW846 8260B
1,1-Dichloroethene	111	(66 - 124)	SW846 8260B
1,2-Dichloropropane	100	(74 - 115)	SW846 8260B
trans-1,3-Dichloropropene	106	(85 - 122)	SW846 8260B
Methylene chloride	103	(50 - 130)	SW846 8260B

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## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHNFC1AC      Matrix.....: SOLID  
 LCS Lot-Sample#: F6K010000-192

<u>PARAMETER</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>METHOD</u>
1,1,2,2-Tetrachloroethane	<b>109</b>	(75 - 115)	SW846 8260B
Tetrachloroethene	<b>128</b> a	(71 - 126)	SW846 8260B
1,1,1-Trichloroethane	<b>95</b>	(53 - 138)	SW846 8260B
1,1,2-Trichloroethane	<b>105</b>	(85 - 115)	SW846 8260B
Trichloroethene	<b>97</b>	(68 - 118)	SW846 8260B
Vinyl chloride	<b>89</b>	(40 - 130)	SW846 8260B
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>RECOVERY</u>	<u>LIMITS</u>
Toluene-d8	115	(89 - 120)	
Dibromofluoromethane	91	(74 - 123)	
1,2-Dichloroethane-d4	88	(67 - 128)	
4-Bromofluorobenzene	116	(79 - 122)	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analytic recovery is outside stated control limits.

## MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHE911AG-MS      Matrix.....: WATER  
 MS Lot-Sample #: F6J270320-001      JHE911AH-MSD  
 Date Sampled...: 10/24/06 09:50 Date Received..: 10/27/06  
 Prep Date.....: 10/30/06 Analysis Date.: 10/30/06  
 Prep Batch #....: 6303509 Analysis Time.: 18:27  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	LIMITS	METHOD
<i>cis</i> -1,3-Dichloropropene	95	(75 - 126)	2.9	(0-20)	SW846 8260B
	98	(75 - 126)			SW846 8260B
Bromodichloromethane	93	(76 - 130)	3.2	(0-20)	SW846 8260B
	96	(76 - 130)			SW846 8260B
Bromomethane	103	(43 - 150)	1.6	(0-20)	SW846 8260B
	105	(43 - 150)			SW846 8260B
Acetone	82	(20 - 150)	3.4	(0-20)	SW846 8260B
	85	(20 - 150)			SW846 8260B
Bromoform	101	(73 - 132)	7.1	(0-20)	SW846 8260B
	109	(73 - 132)			SW846 8260B
Carbon disulfide	107	(68 - 146)	4.7	(0-20)	SW846 8260B
	112	(68 - 146)			SW846 8260B
Carbon tetrachloride	90	(64 - 141)	6.0	(0-20)	SW846 8260B
	95	(64 - 141)			SW846 8260B
1,2-Dichloroethene (total)	98	(69 - 133)	3.9	(0-20)	SW846 8260B
	102	(69 - 133)			SW846 8260B
Chlorobenzene	96	(74 - 123)	4.6	(0-20)	SW846 8260B
	100	(74 - 123)			SW846 8260B
Benzene	95	(79 - 122)	5.7	(0-20)	SW846 8260B
	101	(79 - 122)			SW846 8260B
Dibromochloromethane	99	(72 - 133)	4.6	(0-20)	SW846 8260B
	104	(72 - 133)			SW846 8260B
Chloroethane	86	(63 - 143)	3.7	(0-20)	SW846 8260B
	89	(63 - 143)			SW846 8260B
Toluene	103	(75 - 127)	7.0	(0-20)	SW846 8260B
	110	(75 - 127)			SW846 8260B
m-Xylene & p-Xylene	103	(76 - 130)	6.1	(0-20)	SW846 8260B
	110	(76 - 130)			SW846 8260B
2-Chloroethyl vinyl ether	0.0 a	(66 - 122)	0.0	(0-20)	SW846 8260B
	0.0 a	(66 - 122)			SW846 8260B
o-Xylene	109	(78 - 126)	4.9	(0-20)	SW846 8260B
	114	(78 - 126)			SW846 8260B
Chloroform	89	(75 - 127)	6.0	(0-20)	SW846 8260B
	94	(75 - 127)			SW846 8260B
2-Hexanone	85	(56 - 138)	2.6	(0-20)	SW846 8260B
	87	(56 - 138)			SW846 8260B
4-Methyl-2-pentanone	99	(43 - 150)	1.5	(0-20)	SW846 8260B
	97	(43 - 150)			SW846 8260B

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## MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #...: F6J270118      Work Order #...: JHE911AG-MS      Matrix.....: WATER  
 MS Lot-Sample #: F6J270320-001      JHE911AH-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chloromethane	95	(61 - 143)			SW846 8260B
	99	(61 - 143)	3.8	(0-20)	SW846 8260B
1,2-Dichlorobenzene	99	(72 - 125)			SW846 8260B
	104	(72 - 125)	5.8	(0-20)	SW846 8260B
Ethylbenzene	98	(81 - 121)			SW846 8260B
	103	(81 - 121)	4.5	(0-20)	SW846 8260B
1,3-Dichlorobenzene	98	(74 - 125)			SW846 8260B
	104	(74 - 125)	5.9	(0-20)	SW846 8260B
Styrene	102	(81 - 126)			SW846 8260B
	108	(81 - 126)	6.0	(0-20)	SW846 8260B
1,4-Dichlorobenzene	91	(69 - 123)			SW846 8260B
	96	(69 - 123)	5.6	(0-20)	SW846 8260B
2-Butanone	92	(59 - 139)			SW846 8260B
	94	(59 - 139)	2.2	(0-20)	SW846 8260B
Bromobenzene	101	(72 - 125)			SW846 8260B
	108	(72 - 125)	7.0	(0-20)	SW846 8260B
Bromo-chloromethane	96	(70 - 130)			SW846 8260B
	100	(70 - 130)	3.5	(0-20)	SW846 8260B
1,1-Dichloroethane	94	(75 - 128)			SW846 8260B
	98	(75 - 128)	3.4	(0-20)	SW846 8260B
n-Butylbenzene	106	(74 - 133)			SW846 8260B
	113	(74 - 133)	5.8	(0-20)	SW846 8260B
sec-Butylbenzene	116	(73 - 137)			SW846 8260B
	124	(73 - 137)	6.4	(0-20)	SW846 8260B
tert-Butylbenzene	115	(69 - 138)			SW846 8260B
	125	(69 - 138)	8.3	(0-20)	SW846 8260B
1,2-Dichloroethane	86	(67 - 133)			SW846 8260B
	88	(67 - 133)	1.8	(0-20)	SW846 8260B
Allyl chloride	93	(68 - 139)			SW846 8260B
	95	(68 - 139)	2.4	(0-20)	SW846 8260B
2-Chlorotoluene	98	(37 - 138)			SW846 8260B
	100	(37 - 138)	2.6	(0-20)	SW846 8260B
4-Chlorotoluene	92	(63 - 139)			SW846 8260B
	95	(63 - 139)	3.1	(0-20)	SW846 8260B
Cyclohexanone	50	(20 - 147)			SW846 8260B
	48	(20 - 147)	3.6	(0-20)	SW846 8260B
cis-1,2-Dichloroethene	100	(64 - 138)			SW846 8260B
	105	(64 - 138)	4.6	(0-20)	SW846 8260B
1,2-Dibromo-3-chloropropane (DBCP)	101	(62 - 133)			SW846 8260B
	100	(62 - 133)	0.79	(0-20)	SW846 8260B

(Continued on next page)

## MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHE911AG-MS      Matrix.....: WATER  
 MS Lot-Sample #: F6J270320-001      JHE911AH-MSD

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>LIMITS</u>	<u>METHOD</u>
1,2-Dibromoethane (EDB)	96	(70 - 125)			SW846 8260B
	99	(70 - 125)	3.6	(0-20)	SW846 8260B
trans-1,4-Dichloro-2-butene	109	(57 - 148)			SW846 8260B
	112	(57 - 148)	2.5	(0-20)	SW846 8260B
trans-1,2-Dichloroethene	96	(72 - 130)			SW846 8260B
	99	(72 - 130)	3.2	(0-20)	SW846 8260B
Dichlorodifluoromethane (Freon 12)	89	(41 - 150)			SW846 8260B
	93	(41 - 150)	4.3	(0-20)	SW846 8260B
1,1-Dichloroethene	98	(70 - 131)			SW846 8260B
	102	(70 - 131)	4.0	(0-20)	SW846 8260B
2,2-Dichloropropane	90	(68 - 135)			SW846 8260B
	93	(68 - 135)	3.7	(0-20)	SW846 8260B
1,1-Dichloropropene	99	(76 - 126)			SW846 8260B
	103	(76 - 126)	4.0	(0-20)	SW846 8260B
1,2-Dichloropropane	99	(73 - 125)			SW846 8260B
	104	(73 - 125)	4.9	(0-20)	SW846 8260B
Ethyl ether	86	(67 - 142)			SW846 8260B
	87	(67 - 142)	2.0	(0-20)	SW846 8260B
Ethyl methacrylate	118	(67 - 137)			SW846 8260B
	122	(67 - 137)	3.0	(0-20)	SW846 8260B
Freon 113	92	(64 - 140)			SW846 8260B
	95	(64 - 140)	3.8	(0-20)	SW846 8260B
Hexachlorobutadiene	91	(47 - 143)			SW846 8260B
	93	(47 - 143)	2.4	(0-20)	SW846 8260B
1,3-Dichloropropane	98	(70 - 126)			SW846 8260B
	103	(70 - 126)	4.2	(0-20)	SW846 8260B
n-Hexane	99	(72 - 131)			SW846 8260B
	105	(72 - 131)	6.8	(0-20)	SW846 8260B
Isopropylbenzene	112	(72 - 136)			SW846 8260B
	117	(72 - 136)	4.4	(0-20)	SW846 8260B
4-Isopropyltoluene	112	(75 - 137)			SW846 8260B
	120	(75 - 137)	6.9	(0-20)	SW846 8260B
trans-1,3-Dichloropropene	99	(68 - 135)			SW846 8260B
	102	(68 - 135)	2.7	(0-20)	SW846 8260B
Methyl methacrylate	102	(64 - 136)			SW846 8260B
	105	(64 - 136)	2.9	(0-20)	SW846 8260B

(Continued on next page)

## MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #...: F6J270118      Work Order #...: JHE911AG-MS      Matrix.....: WATER  
 MS Lot-Sample #: F6J270320-001      JHE911AH-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Methyl tert-butyl ether (MTBE)	90	(76 - 126)			SW846 8260B
	92	(76 - 126)	2.0	(0-20)	SW846 8260B
Naphthalene	101	(60 - 134)			SW846 8260B
	97	(60 - 134)	3.9	(0-20)	SW846 8260B
Methylene chloride	99	(34 - 149)			SW846 8260B
	105	(34 - 149)	5.8	(0-20)	SW846 8260B
2-Nitropropane	80	(55 - 150)			SW846 8260B
	82	(55 - 150)	3.2	(0-20)	SW846 8260B
n-Propylbenzene	115	(70 - 140)			SW846 8260B
	124	(70 - 140)	8.0	(0-20)	SW846 8260B
1,1,1,2-Tetrachloroethane	97	(74 - 122)			SW846 8260B
	99	(74 - 122)	2.6	(0-20)	SW846 8260B
Tetrahydrofuran	104	(69 - 143)			SW846 8260B
	107	(69 - 143)	2.4	(0-20)	SW846 8260B
1,1,2,2-Tetrachloroethane	99	(63 - 130)			SW846 8260B
	102	(63 - 130)	3.0	(0-20)	SW846 8260B
1,2,3-Trichlorobenzene	91	(59 - 135)			SW846 8260B
	89	(59 - 135)	2.1	(0-20)	SW846 8260B
1,2,4-Trichlorobenzene	91	(59 - 135)			SW846 8260B
	91	(59 - 135)	0.02	(0-20)	SW846 8260B
Tetrachloroethene	95	(66 - 124)			SW846 8260B
	100	(66 - 124)	5.0	(0-20)	SW846 8260B
1,3,5-Trimethylbenzene	114	(73 - 136)			SW846 8260B
	123	(73 - 136)	7.2	(0-20)	SW846 8260B
1-Butanol	98	(22 - 150)			SW846 8260B
	97	(22 - 150)	0.02	(0-20)	SW846 8260B
Acetonitrile	99	(20 - 150)			SW846 8260B
	101	(20 - 150)	2.1	(0-20)	SW846 8260B
1,1,1-Trichloroethane	91	(69 - 135)			SW846 8260B
	96	(69 - 135)	5.4	(0-20)	SW846 8260B
Ethyl acetate	95	(61 - 150)			SW846 8260B
	96	(61 - 150)	1.1	(0-20)	SW846 8260B
Iodomethane	95	(72 - 127)			SW846 8260B
	99	(72 - 127)	4.9	(0-20)	SW846 8260B
Vinyl acetate	131	(80 - 150)			SW846 8260B
	134	(80 - 150)	2.5	(0-20)	SW846 8260B
1,1,2-Trichloroethane	99	(70 - 122)			SW846 8260B
	101	(70 - 122)	2.3	(0-20)	SW846 8260B

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## MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #...: F6J270118      Work Order #...: JHE911AG-MS      Matrix.....: WATER  
 MS Lot-Sample #: F6J270320-001      JHE911AH-MSD

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>LIMITS</u>	<u>METHOD</u>
Acrolein	97	(28 - 140)			SW846 8260B
	101	(28 - 140)	3.9	(0-20)	SW846 8260B
Acrylonitrile	103	(75 - 139)			SW846 8260B
	103	(75 - 139)	0.58	(0-20)	SW846 8260B
Cyclohexane	107	(79 - 132)			SW846 8260B
	112	(79 - 132)	5.4	(0-20)	SW846 8260B
Trichloroethene	92	(71 - 124)			SW846 8260B
	98	(71 - 124)	5.8	(0-20)	SW846 8260B
Isobutanol	103	(32 - 150)			SW846 8260B
	99	(32 - 150)	4.1	(0-20)	SW846 8260B
Methacrylonitrile	97	(75 - 144)			SW846 8260B
	99	(75 - 144)	1.6	(0-20)	SW846 8260B
Methylcyclohexane	101	(72 - 138)			SW846 8260B
	104	(72 - 138)	3.5	(0-20)	SW846 8260B
Trichlorofluoromethane	85	(59 - 150)			SW846 8260B
	90	(59 - 150)	4.7	(0-20)	SW846 8260B
Propionitrile	105	(64 - 146)			SW846 8260B
	106	(64 - 146)	1.2	(0-20)	SW846 8260B
1,4-Dioxane	122	(27 - 150)			SW846 8260B
	124	(27 - 150)	1.6	(0-20)	SW846 8260B
Pentachloroethane	106	(68 - 144)			SW846 8260B
	114	(68 - 144)	7.4	(0-20)	SW846 8260B
Methyl acetate	88	(73 - 117)			SW846 8260B
	85	(73 - 117)	4.1	(0-20)	SW846 8260B
Vinyl chloride	88	(59 - 147)			SW846 8260B
	91	(59 - 147)	3.6	(0-20)	SW846 8260B
2-Chloro-1,3-butadiene	104	(76 - 144)			SW846 8260B
	109	(76 - 144)	5.4	(0-20)	SW846 8260B
1,2-Dichloro- 1,1,2,2-tetrafluoroethane	114	(59 - 131)			SW846 8260B
	121	(59 - 131)	6.0	(0-20)	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	98	(68 - 133)
	106	(68 - 133)
Dibromofluoromethane	87	(74 - 129)
	90	(74 - 129)
1,2-Dichloroethane-d4	83	(69 - 132)
	85	(69 - 132)

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## MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #...: F6J270118      Work Order #...: JHE911AG-MS      Matrix.....: WATER  
MS Lot-Sample #: F6J270320-001                                    JHE911AH-MSD

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
4-Bromofluorobenzene	98	(64 - 130)
	108	(64 - 130)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

## MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHDR11AE-MS      Matrix.....: SOLID  
 MS Lot-Sample #: F6J270118-002      JHDR11AF-MSD  
 Date Sampled...: 10/25/06 16:30      Date Received...: 10/27/06  
 Prep Date.....: 10/31/06      Analysis Date...: 10/31/06  
 Prep Batch #....: 6305192      Analysis Time...: 20:08  
 Dilution Factor: 1      % Moisture.....: 13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	LIMITS	METHOD
cis-1,3-Dichloropropene	92 a 98 a	(65 - 128) (65 - 128)	6.2	(0-30)	SW846 8260B SW846 8260B
Bromodichloromethane	84 88	(68 - 124) (68 - 124)	4.5	(0-30)	SW846 8260B SW846 8260B
Bromomethane	76 a 75 a	(30 - 138) (30 - 138)	1.9	(0-30)	SW846 8260B SW846 8260B
Bromoform	97 102	(67 - 138) (67 - 138)	5.3	(0-30)	SW846 8260B SW846 8260B
Acetone	95 a 108 a	(30 - 150) (30 - 150)	13	(0-30)	SW846 8260B SW846 8260B
Carbon disulfide	103 a 104 a	(50 - 147) (50 - 147)	1.7	(0-30)	SW846 8260B SW846 8260B
Carbon tetrachloride	81 84	(53 - 136) (53 - 136)	4.1	(0-30)	SW846 8260B SW846 8260B
2-Butanone	90 a 94 a	(61 - 140) (61 - 140)	5.3	(0-30)	SW846 8260B SW846 8260B
1,2-Dichloroethene (total)	92 a 96 a	(50 - 134) (50 - 134)	3.8	(0-30)	SW846 8260B SW846 8260B
Chlorobenzene	90 94	(65 - 126) (65 - 126)	4.6	(0-30)	SW846 8260B SW846 8260B
Dibromochloromethane	94 96	(67 - 134) (67 - 134)	2.3	(0-30)	SW846 8260B SW846 8260B
Benzene	88 a 93 a	(61 - 126) (61 - 126)	5.3	(0-30)	SW846 8260B SW846 8260B
Chloroethane	47 35	(30 - 150) (30 - 150)	29	(0-30)	SW846 8260B SW846 8260B
Bromochloromethane	88 a 91 a	(66 - 125) (66 - 125)	3.1	(0-30)	SW846 8260B SW846 8260B
Toluene	97 a 101 a	(64 - 128) (64 - 128)	4.1	(0-30)	SW846 8260B SW846 8260B
m-Xylene & p-Xylene	96 a 100 a	(60 - 134) (60 - 134)	3.9	(0-30)	SW846 8260B SW846 8260B
Chloroform	82 86	(50 - 132) (50 - 132)	5.0	(0-30)	SW846 8260B SW846 8260B
o-Xylene	101 a 105 a	(45 - 144) (45 - 144)	3.7	(0-30)	SW846 8260B SW846 8260B
Chloromethane	86 89	(43 - 133) (43 - 133)	3.4	(0-30)	SW846 8260B SW846 8260B

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## MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHDR11AE-MS      Matrix.....: SOLID  
 MS Lot-Sample #: F6J270118-002      JHDR11AF-MSD

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>
2-Hexanone	84 a	(43 - 150)			SW846 8260B
	87 a	(43 - 150)	2.9	(0-30)	SW846 8260B
4-Methyl-2-pentanone	96 a	(51 - 150)			SW846 8260B
	100 a	(51 - 150)	4.3	(0-30)	SW846 8260B
1,2-Dichlorobenzene	92	(65 - 133)			SW846 8260B
	94	(65 - 133)	1.9	(0-30)	SW846 8260B
1,3-Dichlorobenzene	92	(63 - 131)			SW846 8260B
	95	(63 - 131)	2.4	(0-30)	SW846 8260B
Ethylbenzene	91 a	(60 - 128)			SW846 8260B
	94 a ..	(60 - 128)	3.2	(0-30)	SW846 8260B
1,4-Dichlorobenzene	84	(60 - 128)			SW846 8260B
	88	(60 - 128)	5.0	(0-30)	SW846 8260B
Xylenes (total)	98 a	(52 - 140)			SW846 8260B
	102 a	(52 - 140)	3.8	(0-30)	SW846 8260B
Styrene	95 a	(60 - 137)			SW846 8260B
	99 a	(60 - 137)	3.8	(0-30)	SW846 8260B
1,1-Dichloroethane	87	(58 - 129)			SW846 8260B
	90	(58 - 129)	3.5	(0-30)	SW846 8260B
1,2-Dichloroethane	81	(59 - 128)			SW846 8260B
	84	(59 - 128)	3.6	(0-30)	SW846 8260B
1,1-Dichloroethene	95	(50 - 139)			SW846 8260B
	97	(50 - 139)	1.3	(0-30)	SW846 8260B
1,2-Dichloropropane	91	(57 - 130)			SW846 8260B
	96	(57 - 130)	5.7	(0-30)	SW846 8260B
trans-1,3-Dichloropropene	96	(74 - 132)			SW846 8260B
	99	(74 - 132)	2.8	(0-30)	SW846 8260B
Methylene chloride	93	(30 - 150)			SW846 8260B
	100	(30 - 150)	7.6	(0-30)	SW846 8260B
1,1,2,2-Tetrachloroethane	95	(50 - 141)			SW846 8260B
	99	(50 - 141)	3.8	(0-30)	SW846 8260B
Tetrachloroethene	89	(41 - 150)			SW846 8260B
	98	(41 - 150)	10	(0-30)	SW846 8260B
1,1,1-Trichloroethane	83	(60 - 129)			SW846 8260B
	85	(60 - 129)	2.8	(0-30)	SW846 8260B
1,1,2-Trichloroethane	95	(67 - 124)			SW846 8260B
	97	(67 - 124)	2.1	(0-30)	SW846 8260B
Trichloroethene	83	(48 - 132)			SW846 8260B
	87	(48 - 132)	3.6	(0-30)	SW846 8260B
Vinyl chloride	77	(30 - 150)			SW846 8260B
	81	(30 - 150)	5.2	(0-30)	SW846 8260B

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## MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: F6J270118      Work Order #....: JHDR11AE-MS      Matrix.....: SOLID  
MS Lot-Sample #: F6J270118-002                                    JHDR11AF-MSD

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
Toluene-d8	94	(57 - 139)
	86	(57 - 139)
Dibromofluoromethane	78	(30 - 150)
	71	(30 - 150)
1,2-Dichloroethane-d4	72	(51 - 141)
	67	(51 - 141)
4-Bromofluorobenzene	92	(30 - 150)
	88	(30 - 150)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

## **SAMPLE DUPLICATE EVALUATION REPORT**

## General Chemistry

**Client Lot #....: F6J270118      Work Order #....: JHJT7-SMP      Matrix.....: SOLID**  
**JHJT7-DUP**

Date Sampled...: 10/26/06 16:10 Date Received...: 10/27/06

% Moisture.....: 22

<u>PARAM</u>	<u>RESULT</u>	<u>DUPLICATE</u>	<u>UNITS</u>	<u>RPD</u>	<u>RPD LIMIT</u>	<u>METHOD</u>	<u>PREPARATION-ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Percent Moisture	22.5	23.2	%	3.0	(0-30)	SD Lot-Sample #: MCAWW 160.3 MOD	F6J300186-002 10/31-11/01/06	6304054
				Dilution Factor: 1	Analysis Time...: 00:00			

F6J270118

CLIENT ANALYSIS SUMMARY

Storage Loc: 3-171  
 Date Received: 2006-10-27  
 Analytical Due Date: 2006-11-08  
 Report Due Date: 2006-11-10  
 Report Type: B Standard Report  
 EDD Code: 00

Project Manager: BTO Quote #: 72934 SDG:  
 Project: Modine Manufacturing  
 PO#: 918293 Report to: Dawn Townsend  
 Client: 124572 CH2M Hill Inc

#SMPS in LOT: 0

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>Site ID</u>	<u>Client Matrix</u>	<u>DATE/TIME SAMPLED</u>	<u>WORKORDER</u>	<u>A</u>
1 MO-HB-055				2006-10-25 / 1430	JHDRV	SOLID
<u>SAMPLE COMMENTS:</u>						
XX QK SW846 8260B	Volatile Organics, GC/MS (8260B)	4P	ENCORE (COLD PRESERVATION)	01 STANDARD TEST SET	PROT: A	WRK LOC 06 TIC: N
XX ZZ NONE NONE	Archive	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: A	WRK LOC 06
XX WM MCAW 160.3 W MOD	Moisture, Percent (160.3)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: A	WRK LOC 06
<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>Site ID</u>	<u>Client Matrix</u>	<u>DATE/TIME SAMPLED</u>	<u>WORKORDER</u>	<u>A</u>
2 MO-HB-085				2006-10-25 / 1630	JHDR1	SOLID
<u>SAMPLE COMMENTS:</u>						
XX QK SW846 8260B	Volatile Organics, GC/MS (8260B)	4P	ENCORE (COLD PRESERVATION)	01 STANDARD TEST SET	PROT: A	WRK LOC 06 TIC: N
XX ZZ NONE NONE	Archive	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: A	WRK LOC 06
XX WM MCAW 160.3 W MOD	Moisture, Percent (160.3)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: A	WRK LOC 06
<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>Site ID</u>	<u>Client Matrix</u>	<u>DATE/TIME SAMPLED</u>	<u>WORKORDER</u>	<u>I</u>
3 102508-TB				2006-10-25 / 0	JHDR6	WATER
<u>SAMPLE COMMENTS:</u>						
XX QK SW846 8260B	Volatile Organics, GC/MS (8260B)	15	PURGE AND TRAP - 5 mL purge	01 STANDARD TEST SET	PROT: A	WRK LOC 06 TIC: N
<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>Site ID</u>	<u>Client Matrix</u>	<u>DATE/TIME SAMPLED</u>	<u>WORKORDER</u>	<u>A</u>
4 MO-HB-120				2006-10-26 / 940	JHDR8	SOLID
<u>SAMPLE COMMENTS:</u>						
XX QK SW846 8260B	Volatile Organics, GC/MS (8260B)	4P	ENCORE (COLD PRESERVATION)	01 STANDARD TEST SET	PROT: A	WRK LOC 06 TIC: N
XX ZZ NONE NONE	Archive	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: A	WRK LOC 06
XX WM MCAW 160.3 W MOD	Moisture, Percent (160.3)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: A	WRK LOC 06
<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>Site ID</u>	<u>Client Matrix</u>	<u>DATE/TIME SAMPLED</u>	<u>WORKORDER</u>	<u>A</u>
5 MO-HB-120FD				2006-10-26 / 941	JHDTc	SOLID
<u>SAMPLE COMMENTS:</u>						
XX QK SW846 8260B	Volatile Organics, GC/MS (8260B)	4P	ENCORE (COLD PRESERVATION)	01 STANDARD TEST SET	PROT: A	WRK LOC 06 TIC: N
XX ZZ NONE NONE	Archive	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: A	WRK LOC 06
XX WM MCAW 160.3 W MOD	Moisture, Percent (160.3)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: A	WRK LOC 06
<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>Site ID</u>	<u>Client Matrix</u>	<u>DATE/TIME SAMPLED</u>	<u>WORKORDER</u>	<u>A</u>
6 MO-MP11-10				2006-10-26 / 1330	JHDTD	SOLID
<u>SAMPLE COMMENTS:</u>						
XX QK SW846 8260B	Volatile Organics, GC/MS (8260B)	4P	ENCORE (COLD PRESERVATION)	01 STANDARD TEST SET	PROT: A	WRK LOC 06 TIC: N
XX ZZ NONE NONE	Archive	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: A	WRK LOC 06
XX WM MCAW 160.3 W MOD	Moisture, Percent (160.3)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: A	WRK LOC 06
<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>Site ID</u>	<u>Client Matrix</u>	<u>DATE/TIME SAMPLED</u>	<u>WORKORDER</u>	<u>A</u>

F6J270118

CLIENT ANALYSIS SUMMARY

Storage Loc: 3-171,ENCORE  
 Date Received: 2006-10-27  
 Project: Modine Manufacturing  
 Analytical Due Date: 2006-11-08  
 PO#: 918293 Report to: Dawn Townsen  
 Report Due Date: 2006-11-10  
 Client: 124572 CH2M Hill Inc Report Type: B Standard Report  
 #SMPS in LOT: 0 EDD Code: 00

7 MO-MP1-10FD

2006-10-26 / 1331

JHDTH SOLID

SAMPLE COMMENTS:

XX QK SW846 8260B	Volatile Organics, GC/MS (8260B)	4P	ENCORE (COLD PRESERVATION)	01	STANDARD TEST SET	PROT: A	WRK LOC	06	TIC: N
XX ZZ NONE NONE	Archive	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06	
XX WM MCAW 160.3 W MOD	Moisture, Percent (160.3)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06	

SAMPLE # CLIENT SAMPLE IDSite IDClient MatrixDATE/TIME SAMPLEDWORKORDER

A

8 MO-MP1-03

2006-10-26 / 1300

JHDTL SOLID

SAMPLE COMMENTS:

XX QK SW846 8260B	Volatile Organics, GC/MS (8260B)	4P	ENCORE (COLD PRESERVATION)	01	STANDARD TEST SET	PROT: A	WRK LOC	06	TIC: N
XX ZZ NONE NONE	Archive	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06	
XX WM MCAW 180.3 W MOD	Moisture, Percent (160.3)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06	

SAMPLE # CLIENT SAMPLE IDSite IDClient MatrixDATE/TIME SAMPLEDWORKORDER

A

9 MO-MP3-07

2006-10-26 / 1610

JHDTM SOLID

SAMPLE COMMENTS:

XX QK SW846 8260B	Volatile Organics, GC/MS (8260B)	4P	ENCORE (COLD PRESERVATION)	01	STANDARD TEST SET	PROT: A	WRK LOC	06	TIC: N
XX ZZ NONE NONE	Archive	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06	
XX WM MCAW 160.3 W MOD	Moisture, Percent (160.3)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06	

SAMPLE # CLIENT SAMPLE IDSite IDClient MatrixDATE/TIME SAMPLEDWORKORDER

A

10 MO-MP3-12

2006-10-26 / 1620

JHDTN SOLID

SAMPLE COMMENTS:

XX QK SW846 8260B	Volatile Organics, GC/MS (8260B)	4P	ENCORE (COLD PRESERVATION)	01	STANDARD TEST SET	PROT: A	WRK LOC	06	TIC: N
XX ZZ NONE NONE	Archive	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06	
XX WM MCAW 160.3 W MOD	Moisture, Percent (160.3)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06	

# Chain of Custody Record

STL-4124 (0901)

SEVERN  
TRENT**STL**

Severn Trent Laboratories, Inc.

Client CH2M HILL			Project Manager Dan Price			Date 10/25/06	Chain of Custody Number 321643							
Address 727 N. First St. STE 400			Telephone Number (Area Code)/Fax Number 314-421-0900			Lab Number	Page 1 of 1							
City St. Louis	State MO	Zip Code 63102	Site Contact Glynn Roberts	Lab Contact	Analysis (Attach list if more space is needed)									
Project Name and Location (State) Modine Canterbury MO Quote 575766			Carrier/Waybill Number			Special Instructions/ Conditions of Receipt								
Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix	Containers & Preservatives										
Mo-HB-055	10/25/06	1430	Aquous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc2	NaOH		
Mo-HB-085	10/25/06	1630	X			+								
102506-TB	10/25/06	1630				+								
Mo-HB-126	10/26/06	0940	X											
Mo-HB-126FD	10/26/06	0941	X			-								
Mo-MP1-10	10/26/06	1330												
Mo-MP1-10FD	10/26/06	1331												
Mo-MP1-03	10/26/06	1330												
Mo-MP3-07	10/26/06	1610												
Mo-MP3-12	10/26/06	1620				-								
Possible Hazard Identification			Sample Disposal			(A fee may be assessed if samples are retained longer than 1 month)								
<input type="checkbox"/> Non-Hazard	<input type="checkbox"/> Flammable	<input type="checkbox"/> Skin Irritant	<input type="checkbox"/> Poison B	<input type="checkbox"/> Unknown	<input type="checkbox"/> Return To Client	<input type="checkbox"/> Disposal By Lab	<input type="checkbox"/> Archive For _____ Months							
Turn Around Time Required						QC Requirements (Specify)								
<input type="checkbox"/> 24 Hours	<input type="checkbox"/> 48 Hours	<input type="checkbox"/> 7 Days	<input type="checkbox"/> 14 Days	<input type="checkbox"/> 21 Days	<input type="checkbox"/> Other _____									
1. Relinquished By 			Date 10/26/06	Time 1030	1. Received By 			Date 10/27/06				Time 0930		
2. Relinquished By			Date	Time	2. Received By			Date				Time		
3. Relinquished By 			Date	Time	3. Received By			Date				Time		
Comments H														

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

- 4818 -

Client: CH2M HILL  
Quote No: 72934COC/RFA No:  
Initiated By:Date: 10/27/06  
Time: 0430

## Condition Upon Receipt Form

Shipper Name: UPS  
Shipping # (s):\*

1. J200 530 5162
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Multiple Packages Y N N/A  
Sample Temperature (s):\*\*

1. 3
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

\*Numbered shipping lines correspond to Numbered Sample Temp lines

\*\*Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1. Y N	Was sample received broken?	8. N	Sample received with Chain of Custody?
2. Y N N/A	Was sample received with proper pH <sup>1</sup> ? (If not, make note below)	9. Y N	Chain of Custody matches sample ID's on container(s)?
3. Y N	If N/A-Was pH taken by original STL Lab?	10. Y N	Are there custody seals present on cooler?
4. Y N	Sample received in proper containers?	11. Y N N/A	Do custody seals on cooler appear to be tampered with?
5. Y N	Sample volume sufficient for analysis?	12. Y N	Are there custody seals present on bottles?
6. Y N N/A	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)	13. Y N N/A	Do custody seals on bottles appear to be tampered with?
7. Y N	Were contents of the cooler frisked after opening	14. Y N N/A	Was Internal COC/Workshare received?

<sup>1</sup> For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes:

## Corrective Action:

- Client Contact Name: \_\_\_\_\_
- Sample(s) processed "as is"
- Sample(s) on hold until: \_\_\_\_\_

Informed by: \_\_\_\_\_

If released, notify: \_\_\_\_\_ Date: 10-27-06

## Project Management Review:

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.